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ABSTRACT

The Georgia Criterion-referenced Tests are designed to measure a core group of essential basic skills at key points throughout the educational development of students. This monograph reports test results for grades one, four, eight, and ten. Results are presented by graphs and figures, with brief narrative summaries. Information is provided on: (1) student performances in reading and mathematics criterion-referenced tests; (2) historical comparisons of student progress; (3) demographic and educational characteristics of average scale scores; (4) career awareness and development for grades four, eight, and ten; and (5) student performance on high school basic skills tests. (JD)

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Student Assessment in Georgia 1983-84

Criterion-Referenced Tests and Basic Skills Tests Contents and Results

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Foreword

The Georgia Department of Education, in response to Georgia Board of Education Policy II, each year administers the Student Assessment Program. Policy II was adopted by the board to implement 1974 state legislation (APEG 32-65la) authorizing the board to "adopt such instruments, procedures and policies as deemed necessary to assess the effectiveness of the educational programs of the state." Within this framework, Georgia has established an assessment program which has the following priorities.

1. *The program should provide basic information for helping all students in the state assess their own progress through the educational system.*
2. *The program should provide the teachers and administrators in every school basic information for assessing the effectiveness of the principal phases of instruction, both for individual students and for groups of students.*
3. *The program should provide the state education authority with basic information needed for allocating state funds and professional services so as to provide adequate educational opportunities for all students.*
4. *The program should provide the Georgia Board of Education, state legislature and general public with readily interpretable information concerning the progess of the state as a whole and of each local school system.*

This report provides a summary of information about the 1983-84 performance of Georgia students in grades one, four, eight and 10 on the criterion-referenced tests. However, the interpretation of test data requires caution. Tests provide only ***one*** *source of information about the effectiveness of school programs, and test results can be greatly influenced by nonschool factors. In consideration of such factors, these data are provided to help all parties concerned with education in Georgia better to understand, interpret and evaluate student achievement.*

Charles McDaniel
State Superintendent of Schools

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Overview of the Student Assessment Program

Recognizing the need to gain information about the achievement of Georgia students, especially in relation to basic skills, the Georgia Board of Education in 1971 established a statewide testing program. This program provides information used to do the following.

- Identify individual weakness in skill development in the various basic skills assessed
- Diagnose strengths and weaknesses of groups
- Individualize instruction
- Report progress to parents
- Select curriculum materials
- Set the pace of instruction
- Select methods of instruction
- Counsel students
- Help determine changes needed in the curriculum for basic skills development

In its first five years the assessment program tested all students (except certain handicapped) in grades four, eight and 11, using norm-referenced tests. These tests provided information comparing the scores of Georgia students to those of a large group (the norm group) from across the nation. While continuing to assess student achievement with norm-referenced tests, the State Board by 1973 realized the need for assessment information more directly related to instruction in Georgia classrooms and in a form more easily used by teachers in planning programs for students.

An effort was begun to identify basic skills for grades four and eight which related to the adopted *Goals for Education in Georgia,* and to develop test instruments to measure student progress in these areas. Criterion-referenced tests in reading, mathematics and career development were completed and implemented in the spring of 1976.

In contrast to the comparison information yielded by norm-referenced assessment instruments, criterion-referenced tests are designed to assess the specific performance level of each student in relation to a set of well-defined objectives (or competencies). This type of assessment provides information needed to make a variety of individual and programmatic decisions. The Georgia Criterion-referenced Tests are designed to measure a core group of essential basic skills at key points throughout the educational development of students. The skills assessed have been identified by Georgia educators as essential to academic progress, and they form a part of the curriculum which is recommended for Georgia students by the Georgia Department of Education. Tables 1 and 2 illustrate the skill areas and objectives assessed by the criterion-referenced tests at various grade levels. They have been organized to reflect a continuum across the grade levels, with the basic skills competencies required for high school graduation serving as anchor point. It should be noted that the skills represented in the Georgia test objectives constitute only a portion of what is essential for students to learn; there are other areas of curriculum and instruction not addressed in these objectives. Long-range plans for the assessment program call for continuous updating and revision of these objectives, as well as the addition of criterion-referenced tests in other content areas.

Beginning in the 1982-83 school year, results of the High School Basic Skills Tests were used to certify the competencies of students in reading, mathematics and problem solving. The demonstration of competency is part of a state-mandated policy designed to ensure that students have mastered specific skills prior to receiving a high school diploma. Criterion-referenced assessment is uniquely suited to such competency measurement since it requires clear definition of the competencies and exact specifications for their assessment. In turn, instruction can be geared directly to student acquisition of the competencies, and remediation, when needed, can be more easily specified.

The current student assessment program provides for testing of all students in grades one, four, eight and 10 with criterion-referenced tests. Students who do not pass the reading and mathematics tests in grade 10 can take the tests again in grades 11 and 12 (and beyond) if necessary. First grade tests in reading and in mathematics were introduced in the 1983-84 school year. In addition to the mandatory testing, materials for testing in kindergarten and grades two, three and six are provided by the state and are used by about 120 local systems which pay for scoring and reporting services. Since these are optional programs, however, results are not collected and reported statewide.

Table 1
Reading Skills and Objectives by Grade Level

Area	Skills Assessed	Objective Number and Grade at Which Assessed							
		K	1	2 **	3 **	4	6	8	BST
~~Literal~~ Comprehension	~~*Explanation:* The student is~~ able to understand information which is explicitly stated in written material.								
	The student can								
	• distinguish between statements of facts and of opinion.					1	1	1	1
	• recognize explicitly stated main ideas.	16	4,5			2	2	2	2
	• interpret instructions.	5	6			3	3	3	3
Inferential Comprehension	*Explanation:* The student is able to understand information which can be determined from written material even though it is not directly stated in the material.								
	The student can								
	• recognize implicitly stated main ideas, details, sequences of events and cause and effect relationships.	16	9			4	4	4	4
	• interpret semantic (and syntactic*) relationships.		7			5	5	5	5
	• classify words in context.		8			6			
	• interpret figurative language.						6	6	6
	• recognize propaganda techniques.						7	7	7
Problem Solving	*Explanation:* The student is able to locate, recognize, interpret and evaluate information needed for making decisions or solving problems.								
	The student can								
	• match similar sounds represented by letters in the context of words.	14,15	2,3			7			

continued

*not directly measured by BST

**objectives are being revised and were not available at publication

Table 1
continued

Area	Skills Assessed	Objective Number and Grade at Which Assessed							
		K	1	2 **	3 **	4	6	8	BST
	• use information in reference sources; includes identifying appropriate source and locating information needed.					8	8	8	8,12
	• make generalizations and draw conclusions.	16				9	9	9	9
	• make predictions and comparisons.	16	10			10	10	10	10
	• recognize relevance of data.					11	11	11	11
	• distinguish between letter and word, words and sentences, and beginnings and endings of words.	17	1						

Table 2
Mathematics Skills and Objectives by Grade Level

Area	Skills Assessed	Objective Number and Grade at Which Assessed							
		K	1	2**	3**	4	6	8	BST
Concept Identification	***Explanation:*** This skill area concerns the basic vocabulary of mathematics and the interrelationship of different kinds of numbers.								
	The student can								
	• recognize equivalent and nonequivalent sets.	4	5						
	• count and recognize whole numbers.	5	6						
	• recognize symbols.		7						
	• translate numerical forms of rational numbers; may include words to numerals,		1			1	1	1	1
	decimals to percents,						1	1	1
	fractions to percents,						1	1	1
	fractions to decimals or their reverse.						1	1	1
	• identification of place value.		1			1			
	• interpretation of region models.		6			1			
	• identify relations and properties of sets or numbers; may include comparisons (whole numbers and fractions),	1,8	2			2	2	2	
	ordering,	2,8	14			2	2	2	2
	finding missing elements,					2	2	2	
	identifying properties, factors and multiples.					2	2	2	
	• identify sets of points and their relations and properties; may include identification of geometric shapes,	11	3			3	4	4	4
	location of points on a Cartesian plane,					3	4	4	4
	identification of geometric relations,					3	4	4	5
	classification according to similarities or differences.					3			

***objectives are being revised and were not available at publication*

continued

Table 2
continued

Area	Skills Assessed	Objective Number and Grade at Which Assessed							
		K	1	2**	3**	4	6	8	BST
	• identify customary or metric units to measure length, area, weight, time and temperature.		14 time			4	3	3	3
Component Operations	***Explanation:*** This skill area involves actions using numbers. The student must be able to add, subtract, multiply and divide numbers as well as use units of measurement.								
	The student can								
	• apply formulas and proportions.						6	7	6
	• determine probabilities.					12	5	5	14
	• compute with whole numbers,		10 add 11 subtract			7	7	6	7
	fractions,					7	7	6	7
	decimals,						7	6	7
	percents						7	6	7
	and use properties of numerical operations.		10			7	2	6	7
	• determine amounts of money.	12,13	8			5	1,7,10	7	8
	• apply customary or metric units of measurement to determine length, area, volume, weight, time and temperature.	9	9 time			6	6	7	9
Problem Solving	***Explanation:*** This skill area requires the student to select and apply the appropriate concepts and/or operations to solve problems.								
	The student can								
	• estimate results using rounded numbers with or without units of measurement.					8	8	12	10
	• select appropriate operations for a given problem situation.		12			9	9	8	11
	• solve simple word problems.					10	10	9	12
	• organize data.					11	11	10	13
	• interpret data which has been organized.		15			12	12	11	14
	• organize elements of sets.		13						

Student Performance — Grade 1
Criterion-Referenced Tests

First graders were tested in 1984 for the first time with criterion-referenced tests in reading and mathematics. These tests furnish information about achievement of essential reading and mathematics skills and have been added to the state program so that students experiencing difficulty in developing these skills can be identified early in their school careers.

Figures 1 through 6 depict the percentages of first graders achieving each of the objectives tested. Objectives are grouped by skill area. In reading, students performed well on almost all objectives except those which required reading of paragraphs and selecting answers based on the main points read. Achievement for these two objectives was at 50 percent; all other reading objectives were 63 percent or higher. In mathematics, of the 15 objectives, five had 80 percent or more of the students achieving them; an additional six had 70 percent or more achievement.

Percentages of students achieving various numbers of objectives are shown in Table 3.

Overall test performance is reported in the Historical Report in terms of scale scores which range from 100 to 300. In coming years these scores will be used for longitudinal comparisons as well. These scores, depicted in Figures 7 and 8, indicate that overall performance on the reading and mathematics tests is relatively similar. A more detailed explanation of the Historical Report for grade one found on page 22.

Figures 9 through 14 report data analyzed according to certain demographic and educational characteristics such as geographic location, socioeconomic status and size of community. Skills measured by the tests, representative test items and results are described below.

Reading Skills and Results — Grade 1

Skill Area: Concepts for Reading

This skill area includes prereading skills that a child must acquire to begin reading. They include relationships between sounds and letters and distinctions among concepts such as letters, words, sentences and the like. As might be expected for first graders tested in the spring, overall performance in this skill area (71 percent) is at a fairly high level. Achievement on the three objectives was about the same (69-72 percent), and, in general, the students had no particular difficulties with the items measuring these skills. **(See Figure 1.)**

Sample Items

How many sentences are there? Mark the circle below your answer.

The dog is brown.

1	4	10	13
●	○	○	○

Which letter stands for the sound you hear at the beginning of the word "house"? Mark the circle below the answer.

s	w	h	e
○	○	●	○

Which word rhymes with catch? Listen to the four choices: cat, check, that, match. Mark the circle next to your answer.

○ cat
○ check
○ that
● match

Skill Area: Literal Comprehension

This skill area involves understanding information which is explicitly stated in written material. While overall achievement is fairly good (an average of 65 percent of students achieving an objective), there is considerable difference in achievement on the specific objectives. For example, students did well (77 percent achievement) with items which measured their ability to interpret instructions. On the the other hand, 50 percent of the students were successful on the objective which required reading brief paragraphs and answering questions relating to main ideas, details, sequences and cause and effect. Of the items on this latter objective, students had the most difficulty in identifying details in the paragraphs. **(See Figure 2.)**

Sample Items

Read the story about Greg and answer the question.

When Greg gets up in the morning, he washes his face. Then he gets dressed. Next he eats breakfast and brushes his teeth. Now Greg is ready for school.

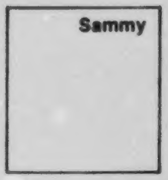
What does Greg do after he eats breakfast?

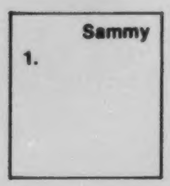
○ makes his bed
○ washes his face
● brushes his teeth
○ gets dressed

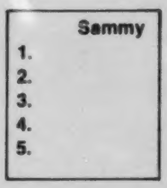
(Teacher reads directions.)

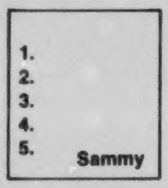
Ms. Green told the children to print their names on the top of their papers and to number from 1 to 5 for their mathematics homework.

Which shows that Sammy followed instructions? Mark the circle next to the answer.

○ 

○ 

● 

○ 

Skill Area: Inferential Comprehension

This skill area involves understanding information that can be determined from written material even though it is not directly stated. Students must be able to use context to determine what makes sense in sentences containing a blank; be able to select a word which belongs with a particular group; be able to recognize inferred main ideas and details and be able to determine what is likely to happen next in a story. Overall performance is slightly less than 65 percent. As with literal comprehension, performance on objectives requiring reading of paragraphs was somewhat lower (50 and 63 percent) than on the other two objectives (75 and 70 percent). This may be related in part to the vocabulary required for reading these paragraphs, as well as to the fact that these more complex reading tasks are mastered at a less even rate by some children. **(See Figure 3.)**

Sample Items

Douglas was late, so he had to __________ to school.

○ ran
● run
○ runs
○ running

Mark the circle next to the word that belongs in the blank.

apple banana pear ________

○ milk
○ meat
● orange
○ cookie

Read the story about Sally and answer the two questions.

Sally wanted a kitten for a pet. She had asked her mother many times if she could have one. One day when she came home after school, she found a kitten in her backyard. What a surprise! It was her birthday present.

(main idea)

What is the best title for the story?

○ Pets Are Fun
○ Sally Comes Home
○ The Birthday Party
● Sally's New Kitten

When did Sally find the cat?

○ in the morning
● in the afternoon
○ on Sunday
○ at night

Read the story about Meg and answer the question.

Meg's mother called her to come inside. Meg had to take a bath and put on clean clothes. She was ready when Mrs. Lee came to pick her up. Meg ran out to the car with her present and said, "I'm ready to eat cake and ice cream!"

Where was Meg going with Mrs. Lee?

● a birthday party
○ the zoo
○ the store
○ school

Figure 1
Concepts for Reading
Grade 1 — Reading
Spring 1984

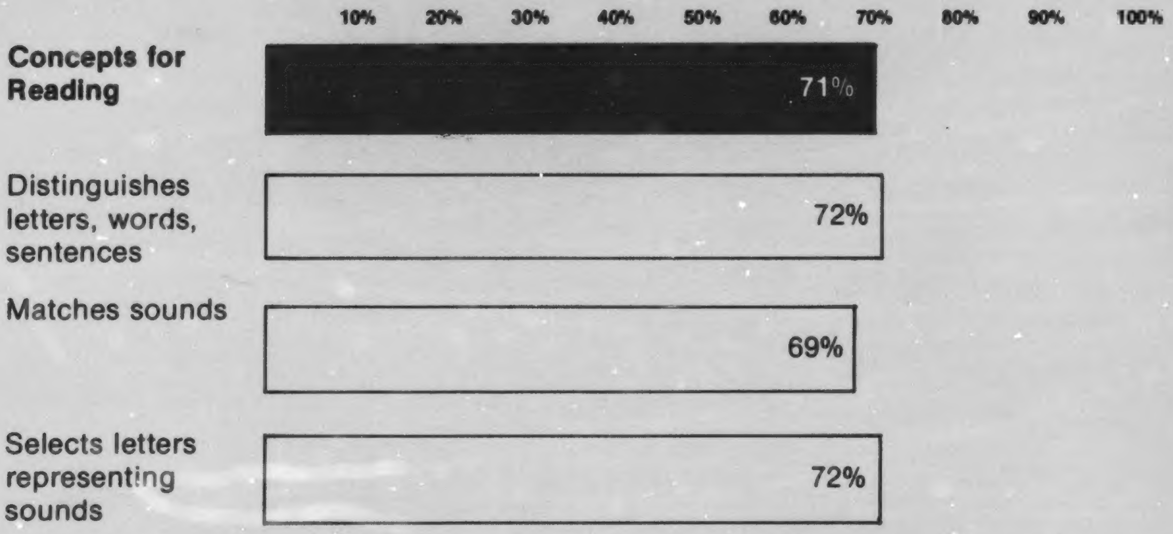


Figure 2
Literal Comprehension
Grade 1 — Reading
Spring 1984

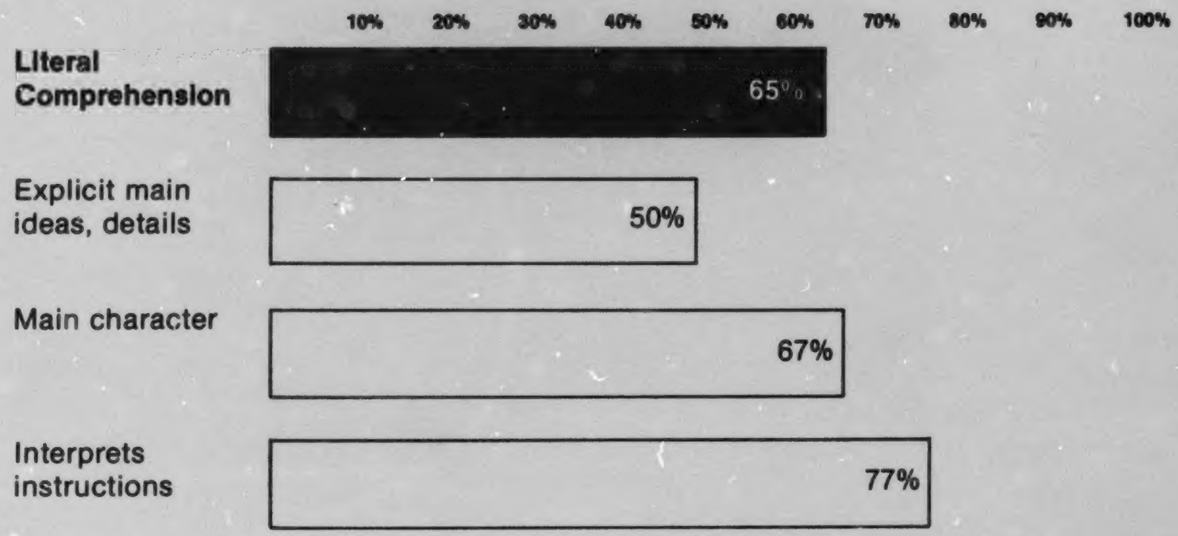
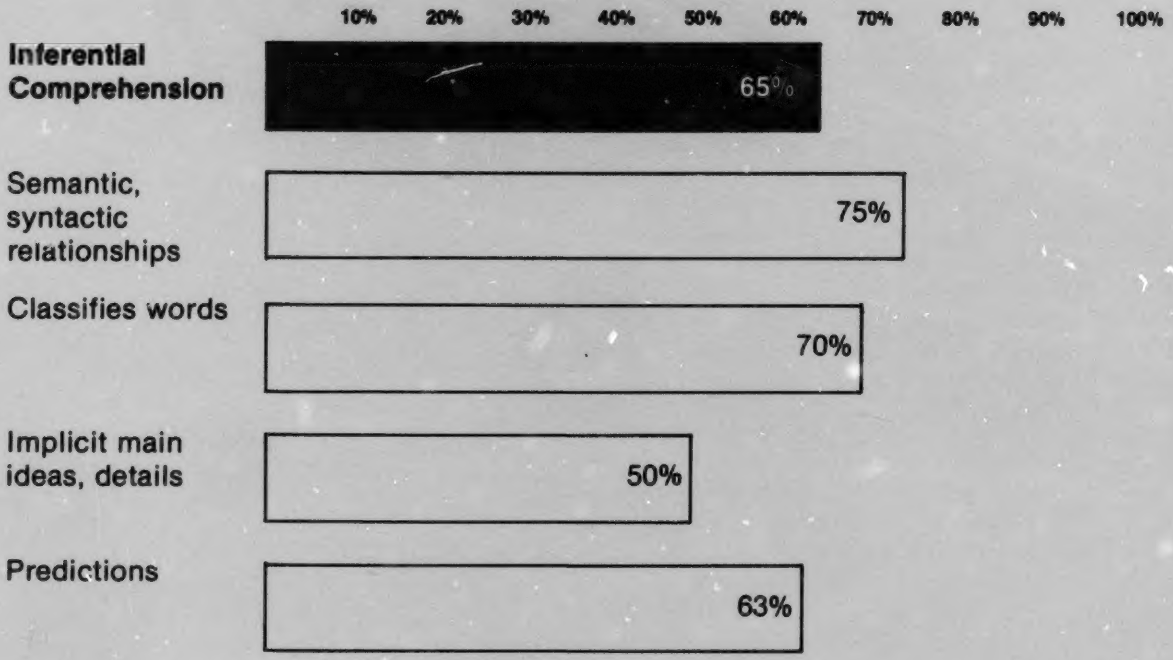


Figure 3
Inferential Comprehension
Grade 1 — Reading
Spring 1984



Mathematics Skills and Results — Grade 1

Skill Area: Concept Identification

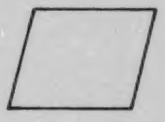
This skill area concerns the basic vocabulary of mathematics and the interrelationships of different kinds of numbers. They include basic counting and naming, comparisons and matching, recognition of standard geometric shapes and recognition of symbols for operations, such as + and −. Overall performance on these objectives is excellent (slightly more than 76 percent), with students doing particularly well on the items which require counting (94 percent achievement) and recognition of numbers and simple fractions and relations such as greater than, less than, first, second and the like (82-85 percent achievement). Students had somewhat more difficulty with the objective dealing with geometric shapes and relations (64 percent achievement). In particular the students had difficulty recognizing an object in a given relationship to another, such as largest or same shape as. They also had lower achievement (60 percent) on the items requiring recognition of symbols (+, −, =, $>$, $<$). **(See Figure 4.)**

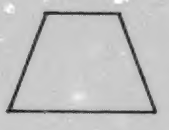
Sample items

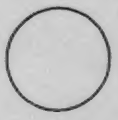
Which means 61? Mark the circle next to the answer.

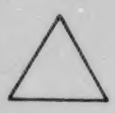
○ 6 + 1
● 6 tens and 1 one
○ 1 ten and 6 ones
○ 61 tens

Mark the circle next to the triangle.

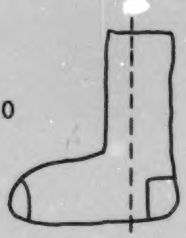
○ 

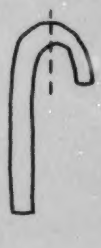
○ 

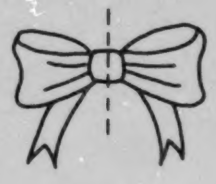
○ 

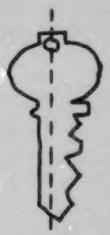
● 

Look at the four pictures. Which picture can be folded along the dotted line so that the two parts match? Mark the circle next to the answer.

○ 

○ 

● 

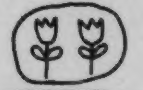
○ 

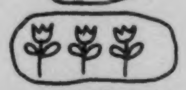
Which number is GREATER THAN 17? Mark the circle next to the answer.

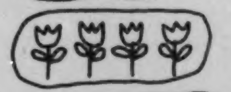
● 19
○ 14
○ 10
○ 7

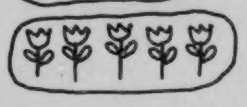
4

Look at the number in the box. Mark the circle next to the set that has that many flowers.

○ 

○ 

● 

○ 

A movie lasts about 2 ____.

Mark the circle next to the answer.

● hours
○ minutes
○ months
○ weeks

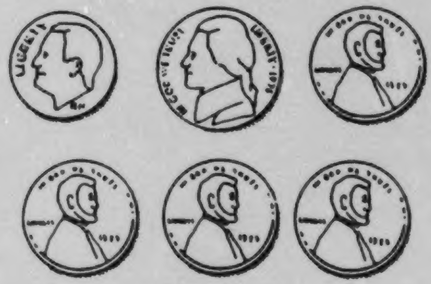
Which symbol means addition? Mark the circle next to the answer.

● +
○ –
○ <
○ >

Skill Area: Component Operations

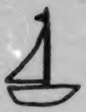
This skill area involves **actions** with numbers and focuses on addition and subtraction and using units of measurement. Students perform well overall in this area with an average achievement per objective of 73 percent. Lowest achievement of the four objectives in this area was 64 percent on the objective containing money problems. Some items on the addition objective (69 percent achievement) caused the students difficulty, in particular those requiring recognition of the commutative property of addition (e.g., 2 + 3 = 3 + 2). On the other hand, students performed well on the subtraction items (81 percent achievement) and items requiring reading a clock or measuring length using nonstandard units (78 percent achievement). **(See Figure 5.)**

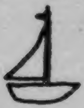
Sample Items

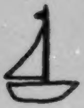


How much money is shown? Mark the circle next to the answer.

○ 15¢
● 19¢
○ 24¢
○ 55¢

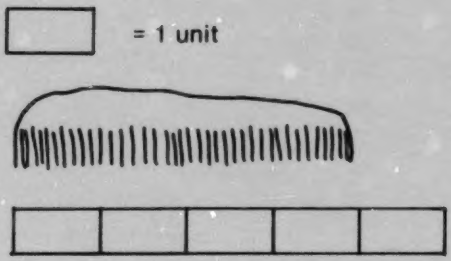
Joy had 3 

Joe had 2 

How many 

did they have in all? Mark the circle next to the answer.

○ 2
○ 3
● 5
○ 6



About how many units long is the comb? Mark the circle next to the answer.

○ 1
○ 3
● 4
○ 5

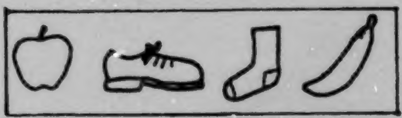
24 + 3 = ☐

○ 24 – 3
○ 2 + 4 + 3
○ 24 + 2 + 3
● 3 + 24

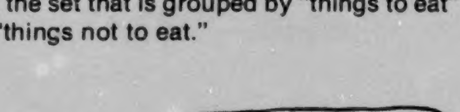
Skill Area: Problem Solving

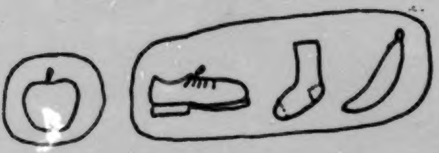
This skill area requires the student to select or apply the appropriate concepts and/or operations necessary to solve problems. Students may match a mathematical sentence to a pictorial problem, match groups of objects (sets) organized by a particular rule (e.g., size, shape), recognize when numbers or patterns are in order and interpret simple bar graphs and pictographs. Overall achievement is excellent (slightly better than 76 percent) indicating that, in general, students have acquired these basic problem solving skills. Performance across the objectives is relatively even. **(See Figure 6.)**

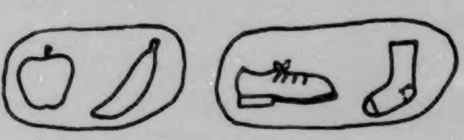
Sample Items

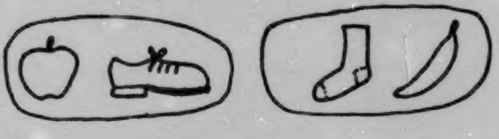


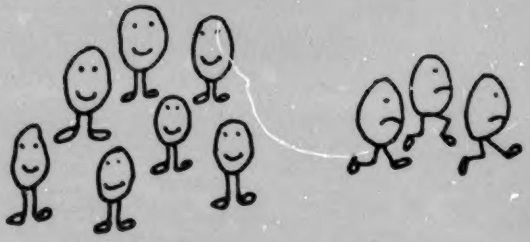
Mark the set that is grouped by "things to eat" and "things not to eat."

○ 

○ 

● 

○ 



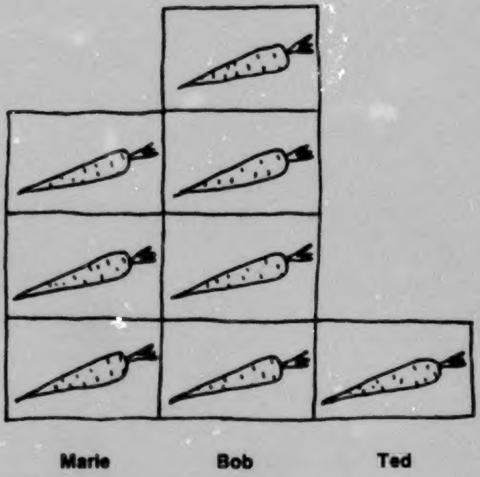
Mark the circle next to the number sentence (equation) that tells about the picture.

○ 10 + 3 = 13
● 10 − 3 = 7
○ 7 − 3 = 4
○ 7 + 3 = 10

Mark the circle next to the numbers that belong in the blanks.

10, 20, 30, 40, ___, ___, ___

○ 41, 42, 43
○ 45, 50, 55
○ 50, 51, 52
● 50, 60, 70



Look at the graph. How many carrots did Bob eat? Mark the circle next to the answer.

○ 0
○ 1
○ 3
● 4

Figure 4
Concept Identification
Grade 1 — Mathematics
Spring 1984

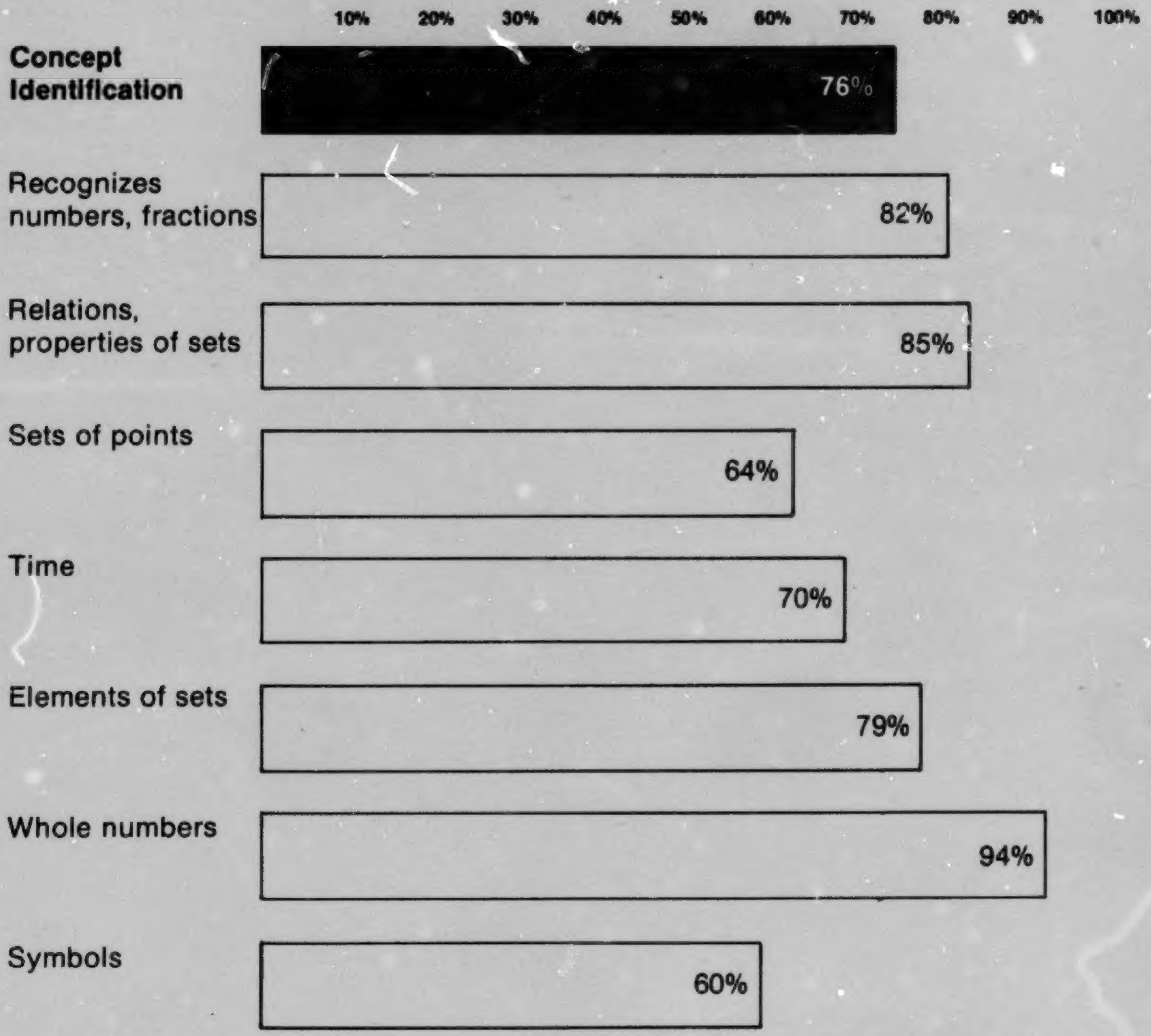


Figure 5
Component Operations
Grade 1 — Mathematics
Spring 1984

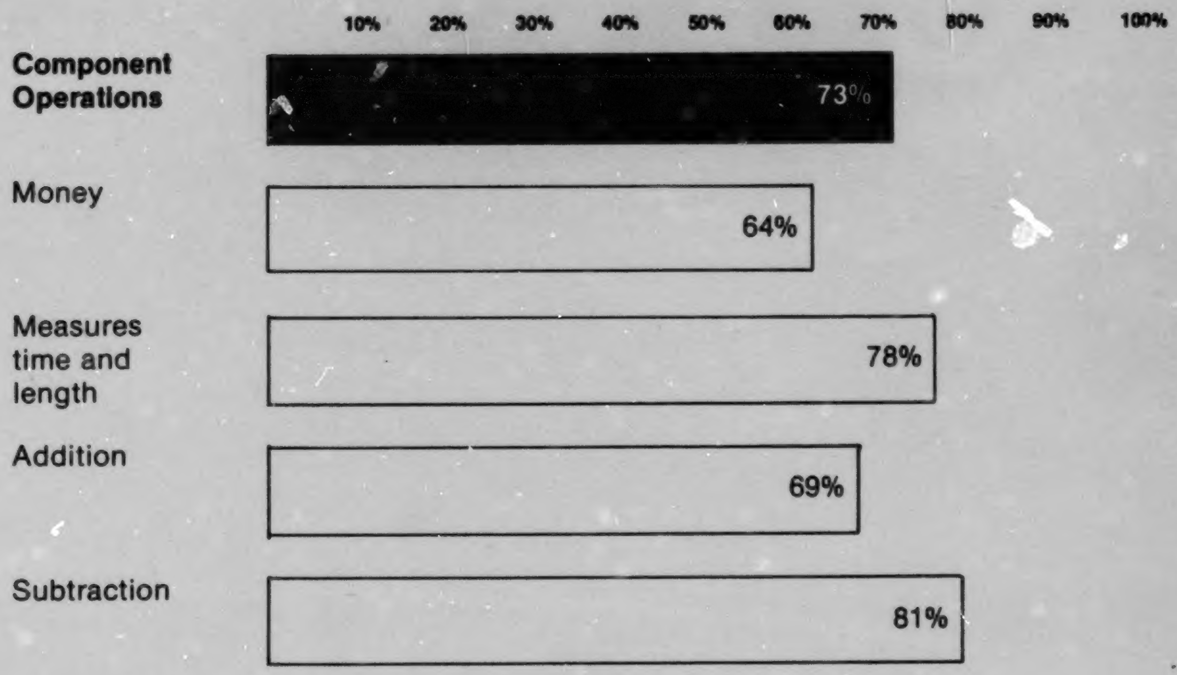


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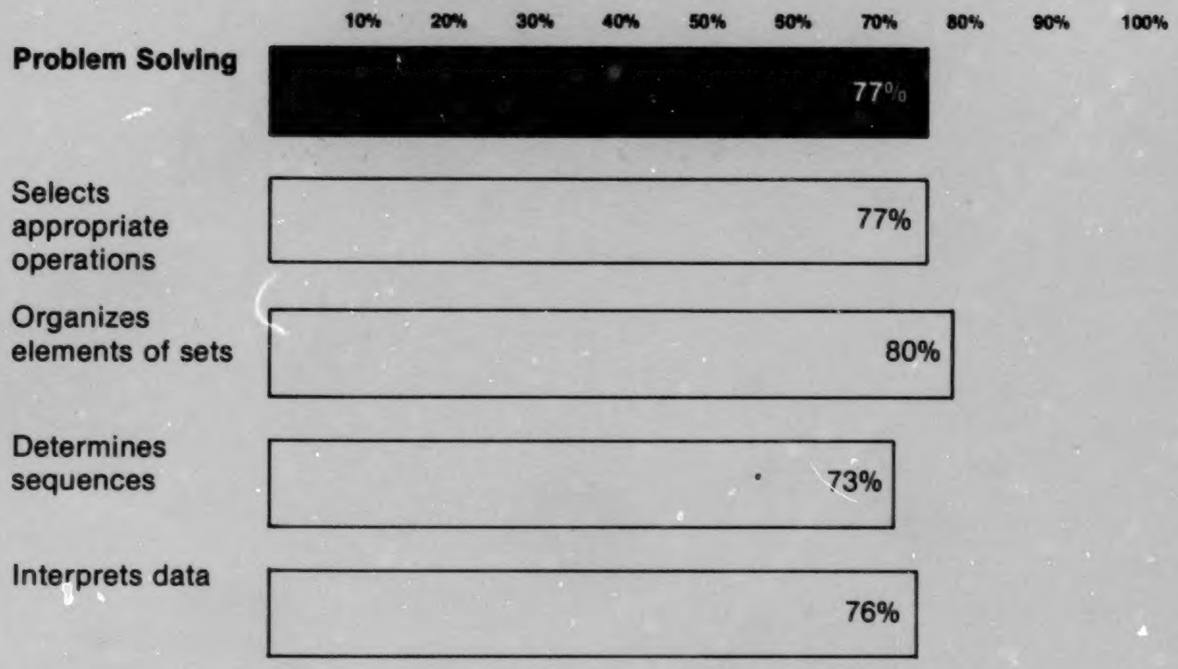
Figure 6
Problem Solving
Grade 1 — Mathematics
Spring 1984



Historical Report — Grade 1

Overall performance on the reading and mathematics tests is reported in terms of scale scores which are numbers between 100 and 300. These scores are used also to look at performance over time. Since the grade one tests were first introduced in 1984, there is no longitudinal comparison data this year. However, it is useful to look at the relative performance on the reading and mathematics tests and at any differences among skill area scores. This is especially useful since differences in difficulty among the skill areas have been taken into account when computing the scale scores.

Figures 7 and 8 depict the overall scale scores and skill area scores for grade one. As can be seen, overall performance in reading and in mathematics is relatively similar. In mathematics, the skill area scores are at virtually the same level. In reading, however, there are some differences among the skill areas. Students have performed relatively better on the items in the area of inferential comprehension and less well on those which measure basic concepts for reading.

Figure 7
Historical Report
Grade 1 — Reading
Spring 1984

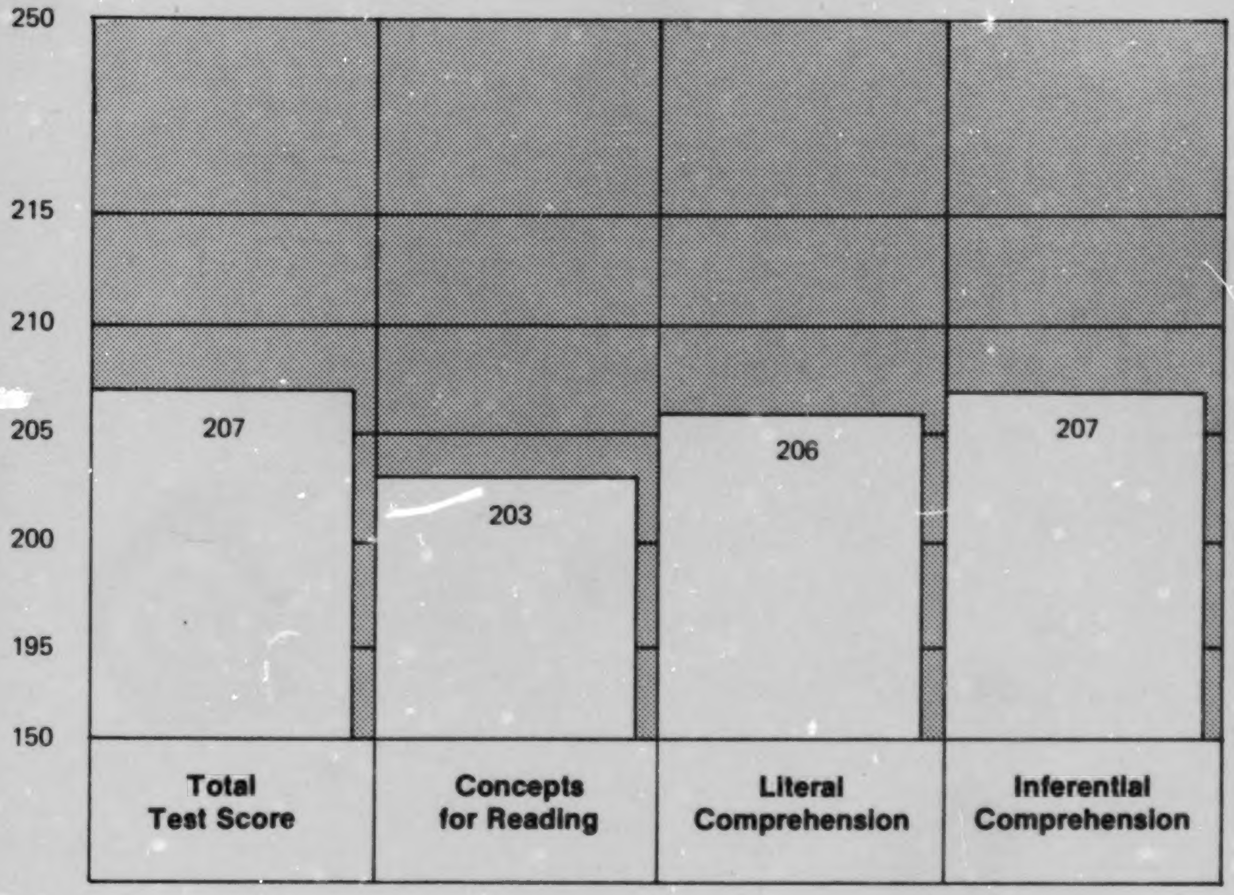


Figure 8
Historical Report
Grade 1 — Mathematics
Spring 1984

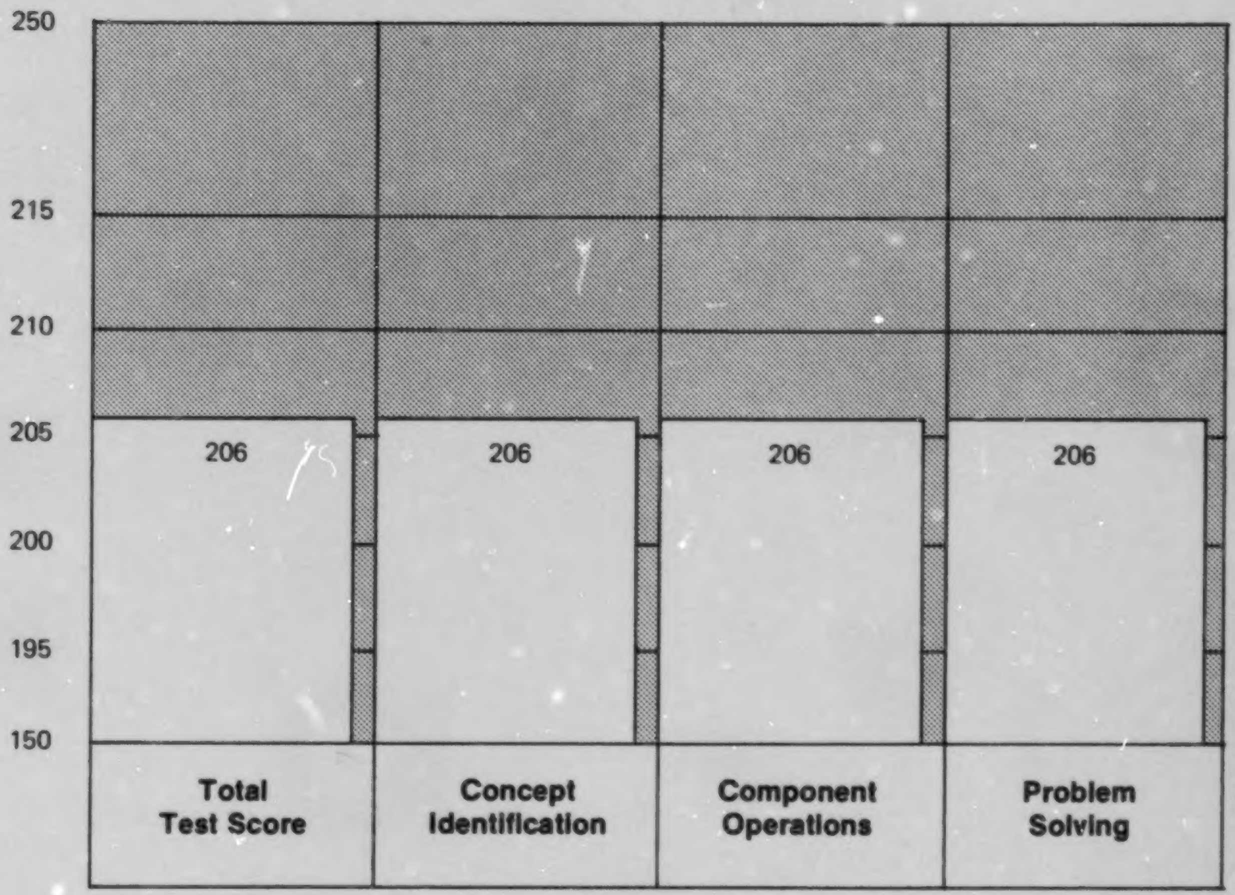


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Table 3
Results by Selected Distributions of Objectives Achieved
Grade 1 — 1984

Percent of Students Who Achieved	1984*
Reading	
7 objectives or more	57%
10 objectives	29%
Mathematics	
12 objectives or more	59%
15 objectives	17%

*1984 is first year of testing at this grade level.

Test Results — Grade 1

Demographic and Educational Characteristics

This section of the report presents the 1984 first grade test results in terms of specific demographic and educational characteristics. One limitation of state summarized test performance is the inability of individual school systems to evaluate performance in relation to specific characteristics unique to that system or subgroups of systems. This analysis attempts to provide such an opportunity. The tables presented are designed to help educators at all levels to better understand, evaluate and summarize performance data.

It should be pointed out that the data presented and the variables examined are not designed to establish cause and effect relationships. There are a great many variables which influence student achievement. The analyses presented in this section do not control for one group of variables while examining others. For example, the differences in performance by geographic area do not take into account influence of many other variables.

Total test scores and skill area scores in the form of scale scores are used in these analyses. Figures 9 and 10 illustrate the differences in performance in three geographic regions of the state. First graders in the north Georgia region are generally performing at a higher level in both reading and mathematics than students in the other regions. While all students in the reading test performed best on the items in the area of inferential comprehension, north Georgia students did particularly well. Poorest performance for all students was the area of concepts for reading. In mathematics, performance in the various skill areas was relatively even for each regional group; however, only the north Georgia scores were above the state means.

Analysis by community type actually refers to size of school system as a variable. Four categories of school system size are presented in Figures 11 and 12. On the reading test, there are slight differences in the total test scores of the four groups with students in the large or metro systems (11,000 students and above) scoring slightly higher than others. On the mathematics test, there are almost no differences in performance among the four groups, either on total test scores or skill area scores.

Using percent of students receiving free lunch as a socioeconomic index, it can be seen in Figures 13 and 14 that students in systems with less than 39 percent receiving free lunch perform best on both the reading and mathematics tests. For the total test in reading, there are almost no differences among the other three groups. However, looking at skill areas, there are differences in the scores of the four groups. Systems with the highest percent of students on free lunch perform the poorest on the skill area called concepts for reading. On the other hand, this same group performed better than two of the other groups on the literal comprehension skill area.

On the mathematics test, there are few differences among scores except for the high scores of the less than 39 percent free lunch group. The only other difference of note is in the area of problem solving, in which the two groups having the highest percentages of students on free lunch (66-100 percent, 55-65 percent) are performing lower than either of the other groups.

Figure 9
Average Scale Score by Geographic Area
Grade 1 — Reading
Spring 1984

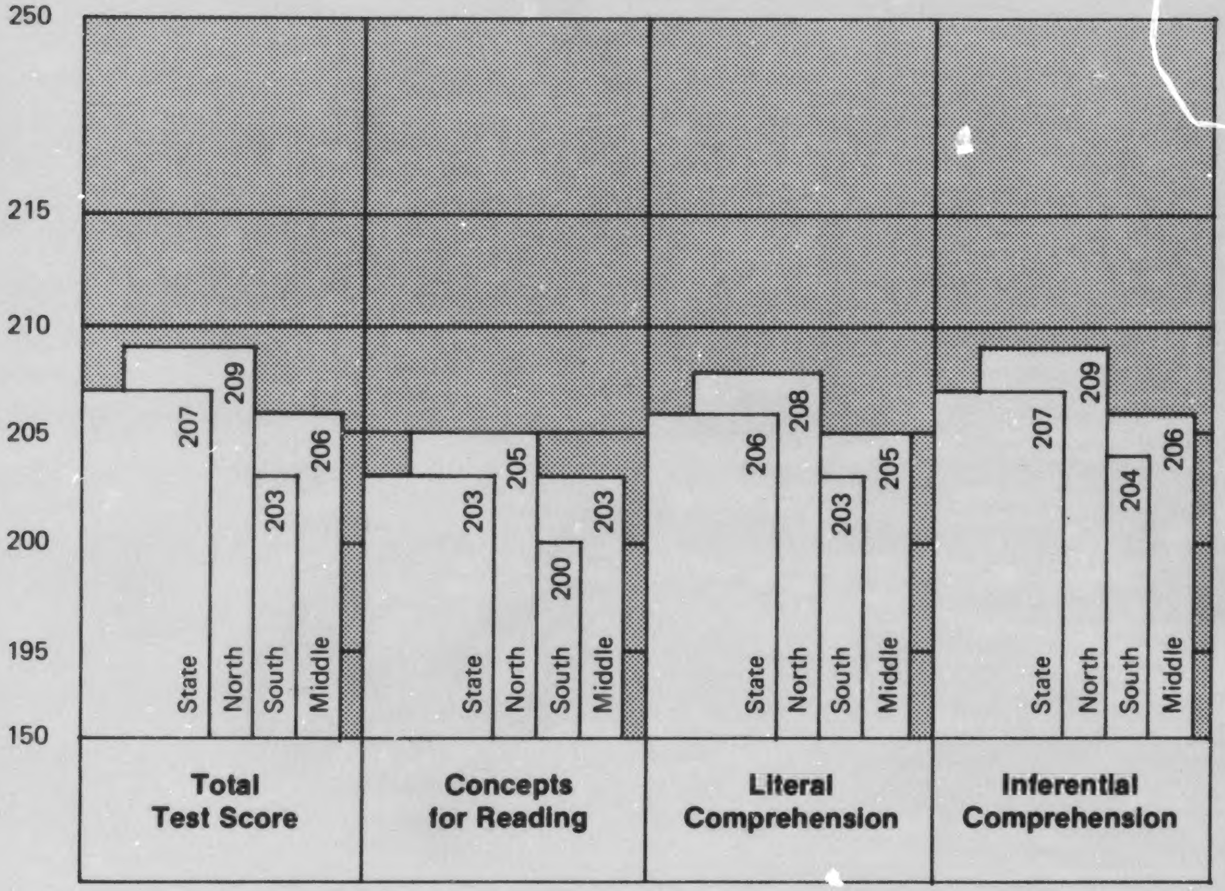


Figure 10
Average Scale Score by Geographic Area
Grade 1 — Mathematics
Spring 1984

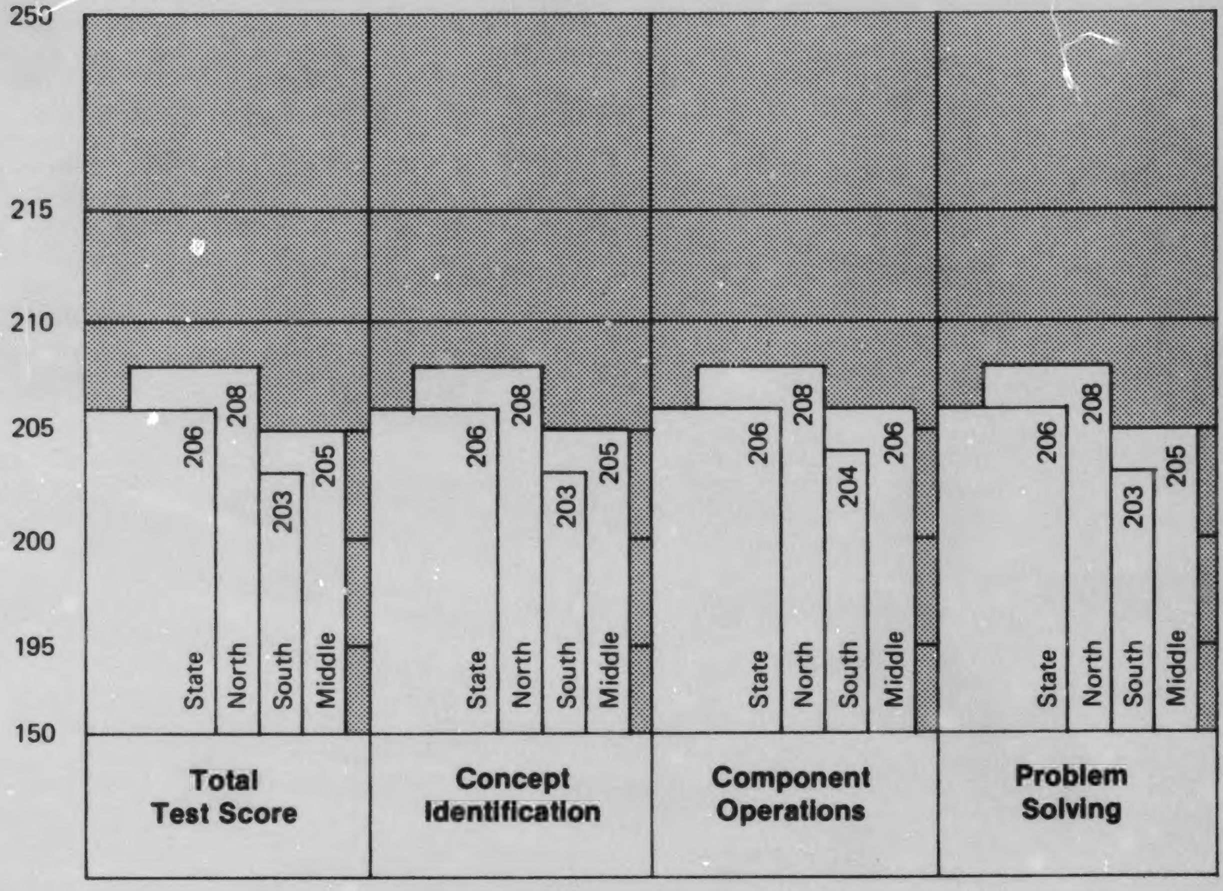
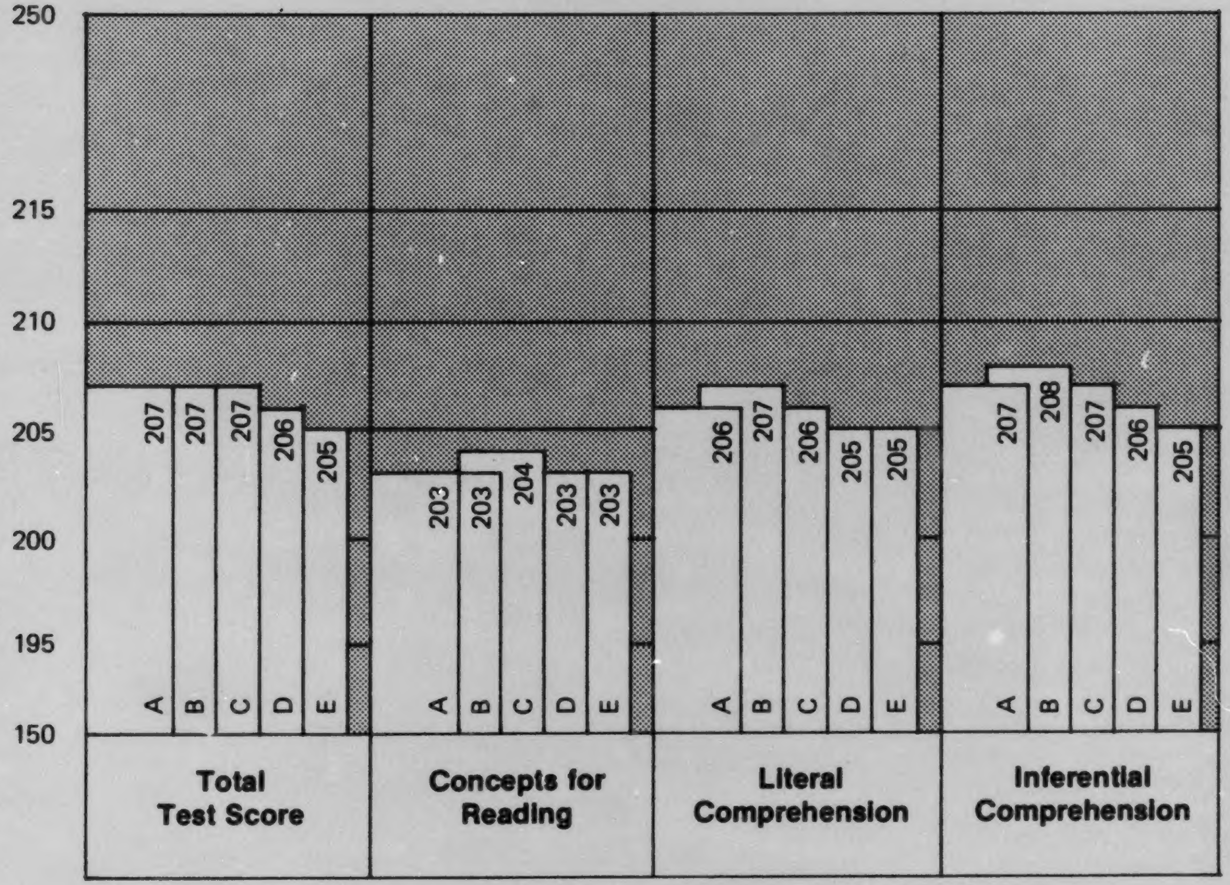
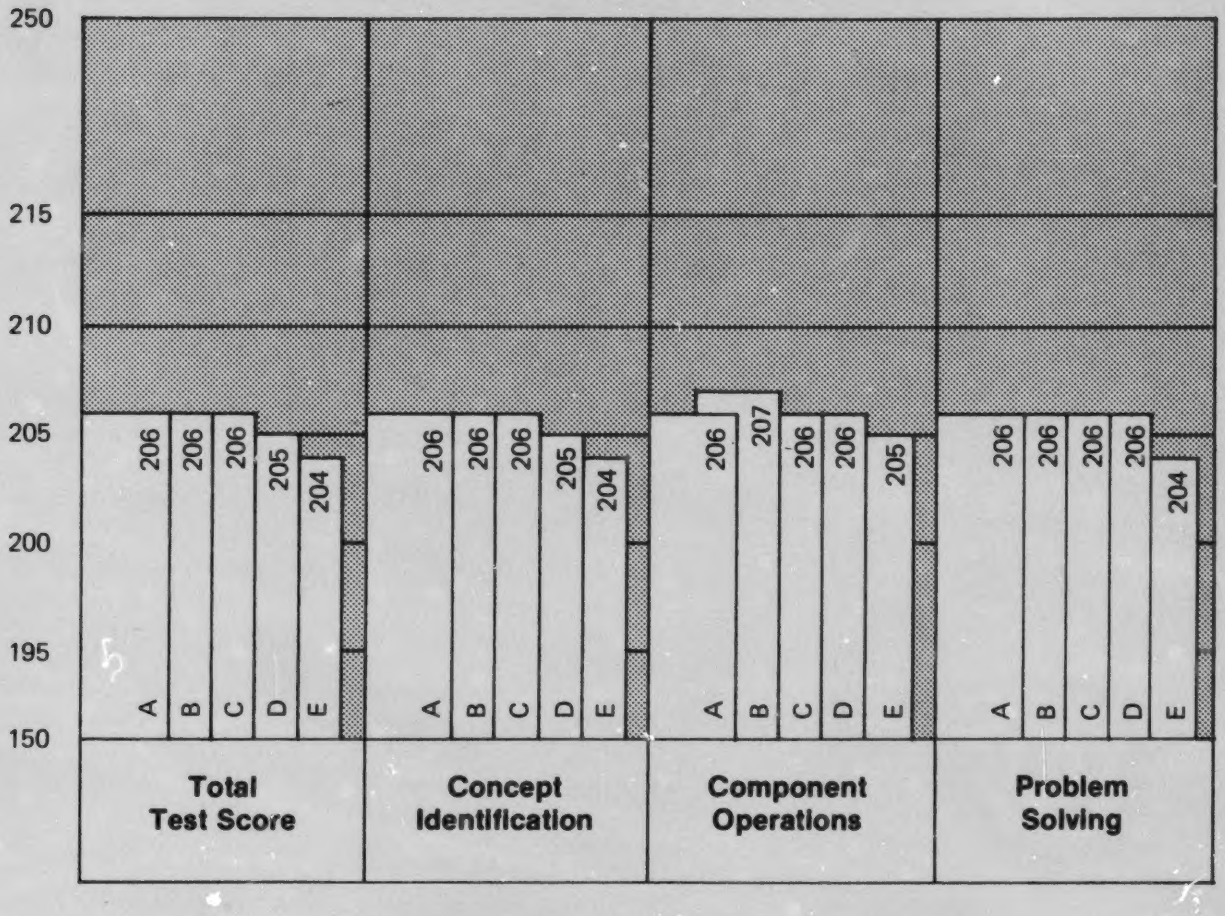


Figure 11
Average Scale Score by Community Type
Grade 1 — Reading
Spring 1984



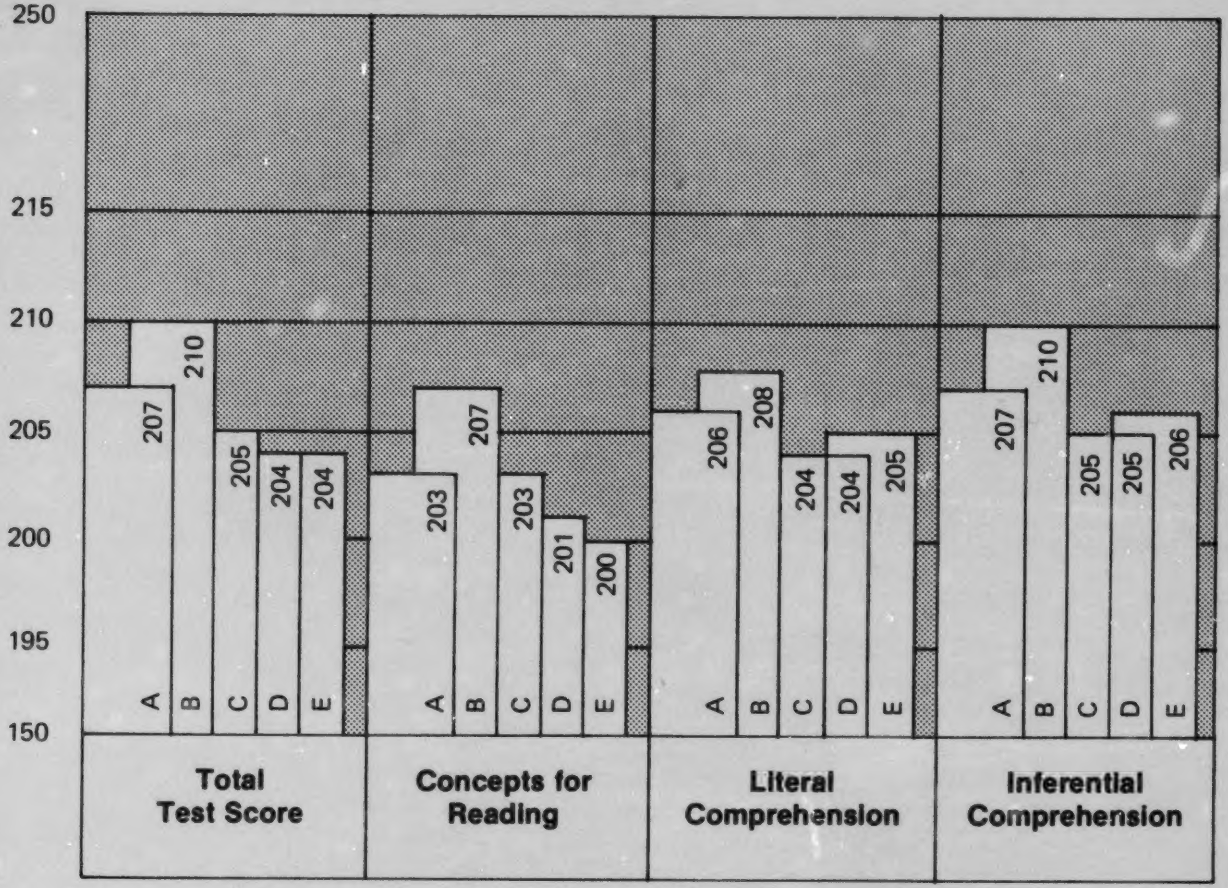
A State
B. Metro (11,000 +)
C. Urban Fringe (6,000-10,999)
D. Middle Size (3,000-5,999)
E. Rural (Up to 2,999)

Figure 12
Average Scale Score by Community Type
Grade 1 — Mathematics
Spring 1984



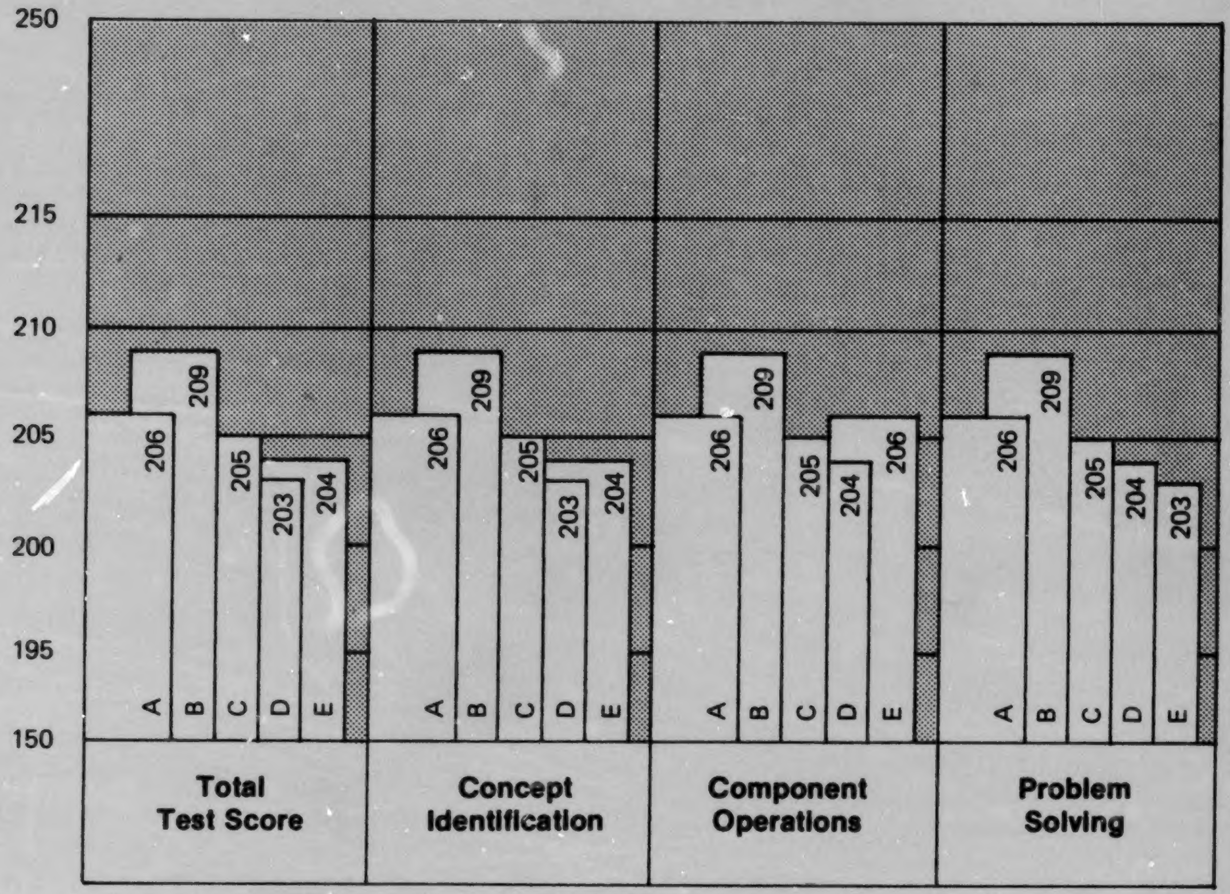
A. State
B. Metro (11,000 +)
C. Urban Fringe (6,000-10,999)
D. Middle Size (3,000-5,999)
E. Rural (Up to 2,999)

Figure 13
Average Scale Score by Free/Reduced Lunch
Grade 1 — Reading
Spring 1984



A. State
B. Less than 39%
C. 40%-54%
D. 55%-65%
E. 66%-100%

Figure 14
Average Scale Score by Free/Reduced Lunch
Grade 1 — Mathematics
Spring 1984



A. State
B. Less than 39%
C. 40%-54%
D. 55%-65%
E. 66%-100%

Student Performance — Grade 4
Criterion-Referenced Tests

Fourth graders are tested in reading, mathematics and career development. New tests (third edition) in reading and mathematics were introduced in 1984. Many of the skills measured by the third edition tests are similar to those on previous editions; however, some objectives have been eliminated and others combined. There is a somewhat greater emphasis on comprehension, application and problem solving skills and a decreased emphasis on word attack skills which treat words in isolation. These changes bring the grade four objectives more in line with current curriculum trends and in sequence with the continuum of skills assessed in grades one, eight and 10. Performance levels on objectives have been made more challenging as well, in an attempt to make the tests better tools for identifying students who have certain skill weaknesses.

Percentages of students achieving each objective on the 1984 reading and mathematics tests is depicted in Figures 15 through 20. In reading, these scores range from a high of 79 percent achieving an objective to a low of 45 percent. In mathematics, objective achievement scores range from a high of 85 percent to a low of 53 percent of students achieving an objective. Because of the changes in content in these two areas at grade four, comparisons to previous years scores are not possible on an objective by objective basis. Longitudinal comparisons are shown in the Historical Report in terms of scale scores which range from 100 to 300 for both reading and mathematics. **(Figures 26 and 27).**

The overall test performance depicted in the Historical Report shows reading and mathematics to be at about the same level for 1984. Scores in 1984 continue the slow but steady trend upward seen for the past several years. More details are provided on page 49.

Career development results by objective are shown in Figures 21 through 25. Career development results for 1984 also are slightly increased since 1983.

Percentage of students achieving various numbers of objectives is shown in Table 4. Figures 28 through 33 report fourth grade results according to certain demographic variables. These include geographic area, community size and socioeconomic status.

Skills measured by the tests, representative test items and results are described below.

Reading Skills and Results — Grade 4

Skill Area: Literal Comprehension

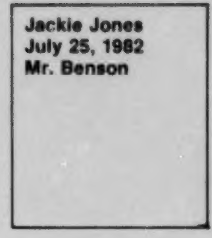
The literal comprehension skill area tests the student's understanding of information explicitly stated in written material. This category requires the student to identify, interpret and recognize explicit information and to follow directions in the context of academic tasks and everyday situations.

Student performance on these skills is somewhat uneven. While nearly 80 percent of fourth graders achieved the objective requiring interpreting of instructions, slightly less than 60 percent achieved the objective requiring selection of main ideas and important points that are directly stated in written material. This objective covers a number of subskills; students had little difficulty with items requiring identification of the main idea of a passage but performed more poorly when dealing with details and order of events in written passages. Sixty-seven percent were successful on items requiring them to distinguish statements of fact and opinion. **(See Figure 15).**

Sample Items

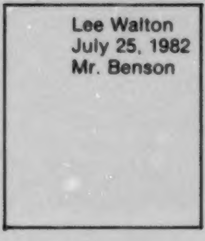
Mr. Benson told his class to put their names in the upper left corner of the page. Then they should put the date, and the teacher's name below that. Which student followed Mr. Benson's directions?

A.



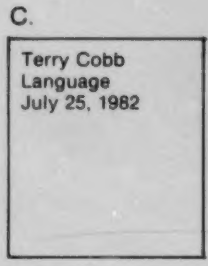
Jackie Jones
July 25, 1982
Mr. Benson

B.



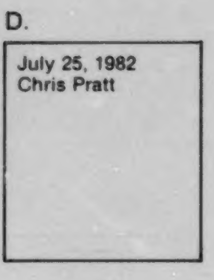
Lee Walton
July 25, 1982
Mr. Benson

C.



Terry Cobb
Language
July 25, 1982

D.



July 25, 1982
Chris Pratt

Steven and Tommy were talking. Which of the following is an OPINION?

A. "I saw the gorilla movie on TV."
B. "I saw the movie, too."
C. "It was really scary!"
D. "My mom made me stop watching it."

Skill Area: Inferential Comprehension

The inferential comprehension skill area tests the student's understanding of information which is not expressed literally in written materials. In other words, the student must be able to read *between the lines* to determine meaning. Inferential comprehension items require the student to recognize and interpret implicitly stated information in the context of academic tasks and everyday situations. Students may be asked to identify main points in a passage; to interpret words from the context in which they are found; and to interpret and use punctuation, word forms and word order to determine meaning in written material.

These skills represent a somewhat higher level of thinking, and the standards for achieving each of the objectives were established at a high level. Possibly as a result of the latter, overall achievement for this skill area (55 percent) is considerably lower than that for the literal comprehension area (68 percent). Students were required to correctly answer 15 of 16 items on the objective relating to indirectly stated main ideas and details; 45 percent of those tested were successful on this objective. Identifying implied cause-effect relationships appeared to cause students the most difficulty. Students were slightly more successful (57 percent achievement) on the items dealing with semantic and syntactic relationships. Item types from this objective which caused the most difficulty were those requiring students to use context to determine the meanings of words and to match pronouns to their referents. **(See Figure 16).**

Sample Items

A folk tale tells about a man named Daedalus who got into an argument with the king of an island. The king put Daedalus and his son in a prison tower. Guards kept watch to make sure they did not leave.

One day, while watching some birds flying, Daedalus thought of a way to escape. He told his son to pick up all the feathers he could find. When they had enough feathers, Daedalus went to work.

He found some wax and melted it. Then he shaped the wax into two sets of wings and covered the wax with feathers. When the wings were finished, Daedalus and his son put them on and flew from the island.

(main idea)
Which title best tells what the tale is about?

A. The Escape
B. The Guard's Job
C. Many Uses of Feathers
D. Folk Stories

(cause-effect)
Daedalus was kept a prisoner because he:

A. hid from the guards
B. made the king angry.
C. killed some birds.
D. hurt the king's son.

(using context)
After playing hard but losing the game anyway, Joan said, *"Well, that's the way the ball bounces."*

What did Joan mean by *"that's the way the ball bounces?"*

A. Balls without enough air in them won't bounce.
B. Sometimes, even when you try hard, things don't work out the way you want them to.
C. You can't tell in which direction a ball will bounce.
D. Joan played hard but forgot to bounce the ball right.

Skill Area: Problem Solving

The problem solving skill area tests the student's skill at locating, recognizing, interpreting and evaluating information in its various forms and sources. Also included here are items which require students to demonstrate basic word attack skills by matching sounds and letters. Students must know how to use reference sources and how to use information to compare, to reach conclusions or to make predictions based on the information given. Other items require the student to identify relevant or irrelevant information for a specific problem. Overall achievement for this skill area is 59 percent.

Within the skill area, students were very successful on the objective dealing with basic word attack skills. They performed less well when asked to identify appropriate reference sources for solving problems or to use a dictionary to find word meanings, synonyms or the like. Another area of difficulty was that of making predictions and comparisons based on information given in a passage (50 percent achievement). Fourth graders were relatively more successful, however, when identifying information needed to solve problems (61 percent achievement). **(See Figure 17.)**

Sample Items

(dictionary)
Which set of guide words would appear on the page where you would find the word gruff?

A. get-goat
B. good-grim
C. grin-gum
D. gutter-hang

Which word has the same sound as ou in the word tough?

A. round
B. through
C. rough
D. dough

(relevant information)
Kerry wanted to earn some money selling lemonade. He knew how much his paper cups would cost. He knew how much the paper would cost for his sign. The materials for the lemonade stand were in the garage, so he wouldn't have to buy any. What else does Kerry need to know before he can decide how much to charge for his lemonade?

A. how much wood he needs
B. how many cups of lemonade he wants to sell
C. the cost of the hammer to build the stand
D. the cost of the lemonade

Figure 15
Literal Comprehension
Grade 4 — Reading
Spring 1984

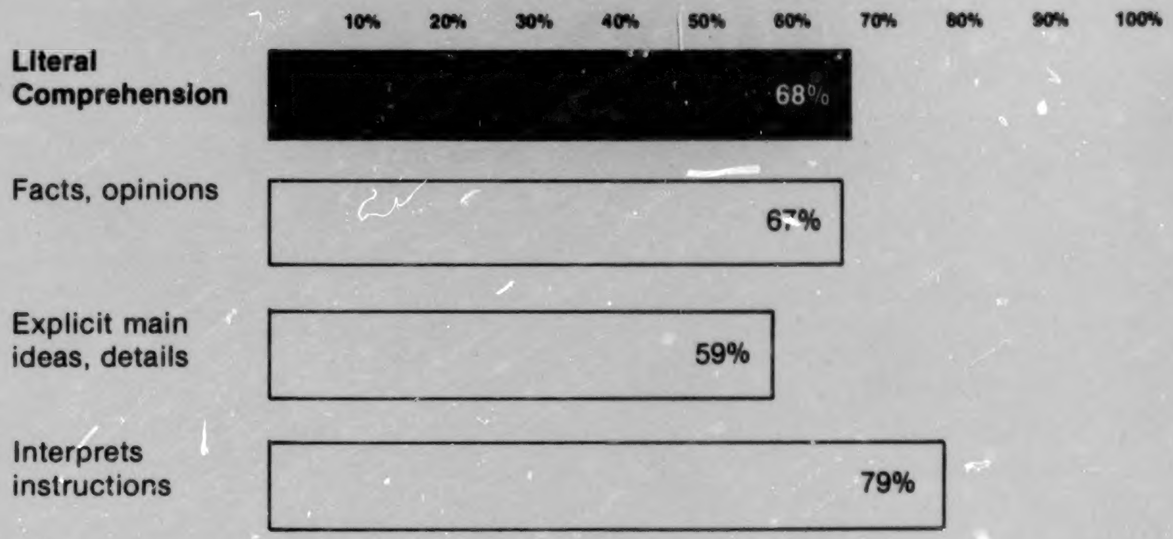


Figure 16
Inferential Comprehension
Grade 4 — Reading
Spring 1984

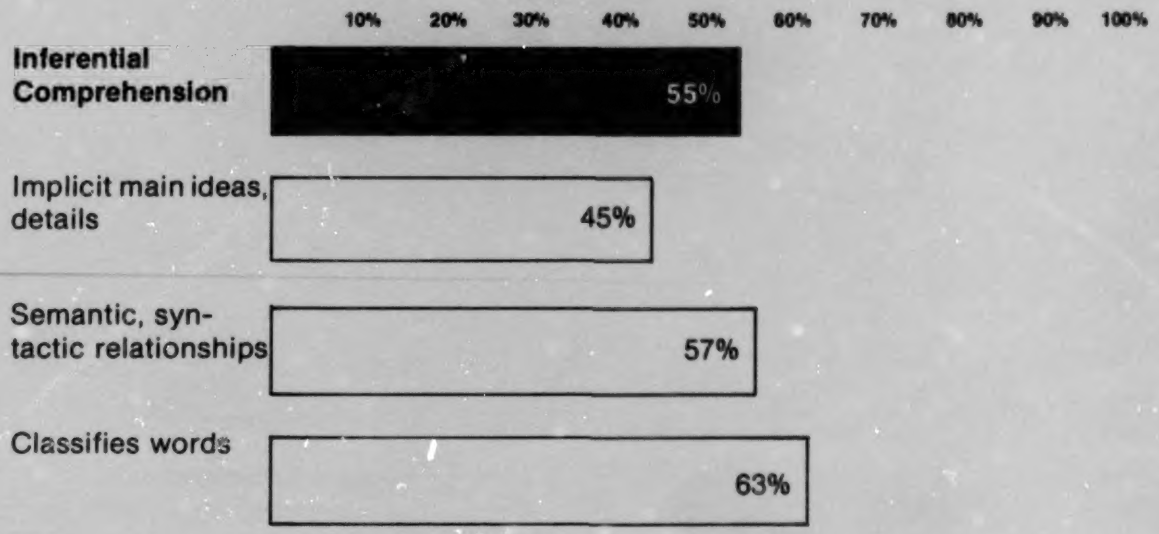
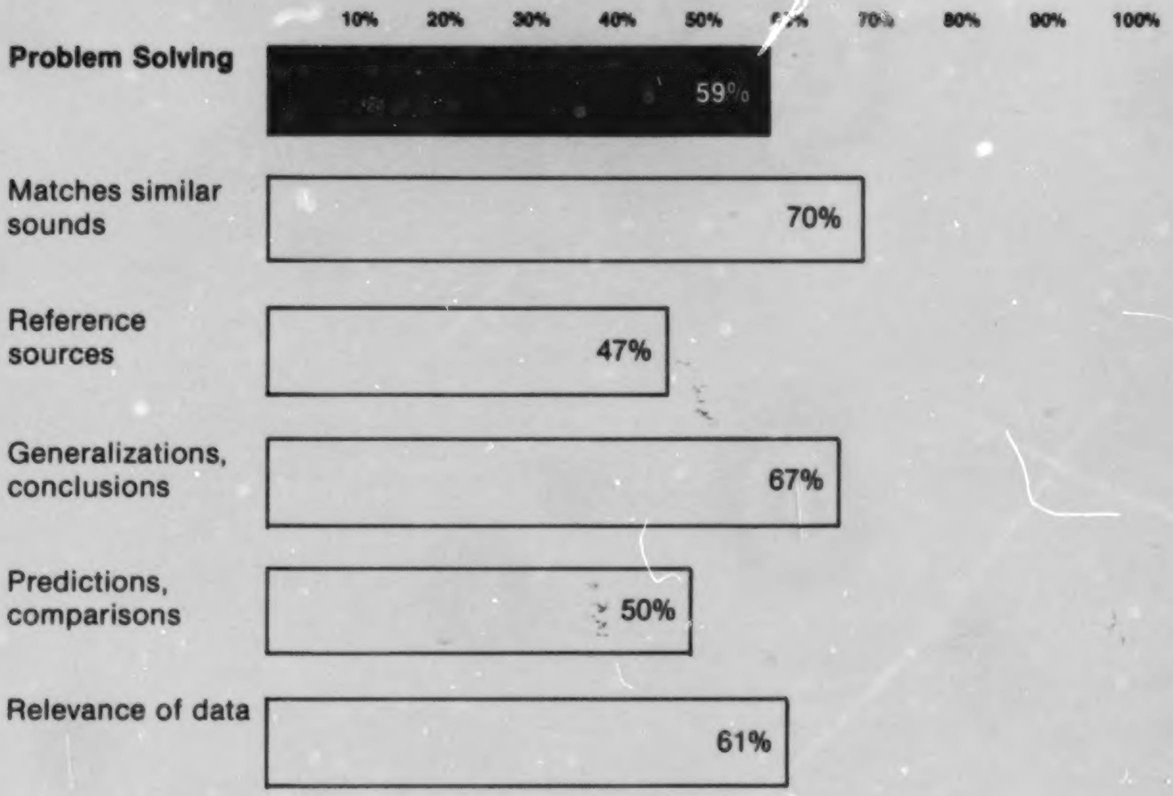


Figure 17
Problem Solving
Grade 4 — Reading
Spring 1984



Mathematics Skills and Results — Grade 4

Skill Area: Concept Identification

Objectives for this skill area concern the basic vocabulary of mathematics and the interrelationships of different kinds of numbers. These objectives cover identification of numbers and place value, identification of relationships among numbers, recognition of standard geometric shapes and relations and selection of appropriate units of measurement specific to a given problem.

Overall achievement in this skill area was 70 percent. In general, students performed well on the four objectives, except the one dealing with sets of points and their relations (geometric shapes and relationships). More than 80 percent achieved the objective relating to matching words and numerals, determining place value and interpreting pictorial representations of fractions and numbers. While some 70 percent achieved the objective dealing with properties of sets or numbers, students nevertheless experienced difficulty with items involving comparisons among numbers or fractions. Such comparisons involved judgments such as greater than, less than, factors of numbers, etc. **(See Figure 18.)**

Sample Items

Four thousand eight hundred ten is written

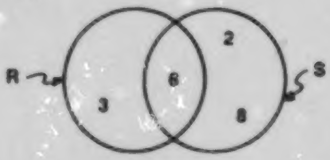
A. 4,000,810
B. 481,000
C. 4,810
D. 4,081

Which is the greatest number that can be written using the digits 3, 7, and 4?

1. 374
2. 347
3. 437
4. **743**

All of the following are factors of 12 except ________

A. 2
B. 3
C. 5
D. 6

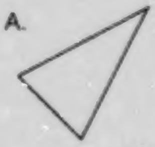


In the figure above, which is a number inside R and outside S?

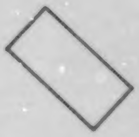
A. 2
B. 3
C. 6
D. 8

Which is a square?

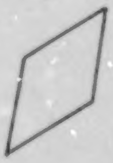
A.



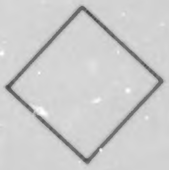
B.



C.



D.



Skill Area: Component Operations

Objectives for this skill area involve actions on numbers. The focus is on addition, subtraction, multiplication and division as well as on using units of measurement. Computing amounts of money and solving word problems about money are included here. In general, students performed well on these objectives, with an average achievement of 80 percent.

On the objective dealing with computation of whole numbers and fractions, achievement was at the 85 percent level. It is interesting to note, however, that students perform much better with the operations of addition and subtraction than with multiplication and division. Students also have more facility performing computations with whole numbers than with fractions. **(See Figure 19.)**

Sample Items

Jerry has to be at school at 8:20. It is now 6:55. About how much time does he have before he must be at school?

A. 35 minutes
B. 75 minutes
C. 1 hour 25 minutes
D. 2 hours 15 minutes

1/2 + 2/2

1. 1/2
2. 1
3. 3/2
4. 3/4

$3\overline{)735}$

A. 115
B. 211 R2
C. 245
D. 278 R1

Skill Area: Problem Solving

Objectives in this skill area require the student to apply the appropriate concepts and/or operations necessary to solve unique problems. Students may be asked to estimate results, to select the appropriate operation to solve problems, to solve simple word problems (involving one or two operations), to select the best arrangement or organization of data to facilitate solving a problem (includes tables, bar graphs, line graphs and circle graphs) and to interpret data already organized.

Overall achievement for the skill area was 67 percent. However, students performed very well on items relating to organization of data, solving simple word problems and estimating results (achievement at 70 percent level or higher). Items requiring students to select operations needed to solve problems or to interpret tables, charts or graphs appear to be more difficult for fourth graders, with achievement at 53 percent and 58 percent. **(See Figure 20).**

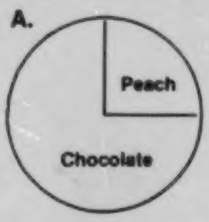
Sample Items

Barbara is B years old. How many years old will she be in 6 years?

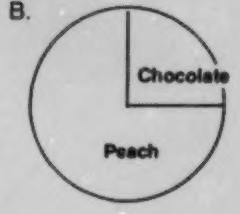
A. B
B. B + 6
C. B - 6
D. 6 - B

In a class of 40 students, 30 like chocolate ice cream best and 10 like peach ice cream best. Which graph shows this?

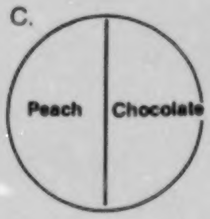
A.



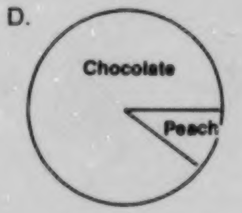
B.



C.



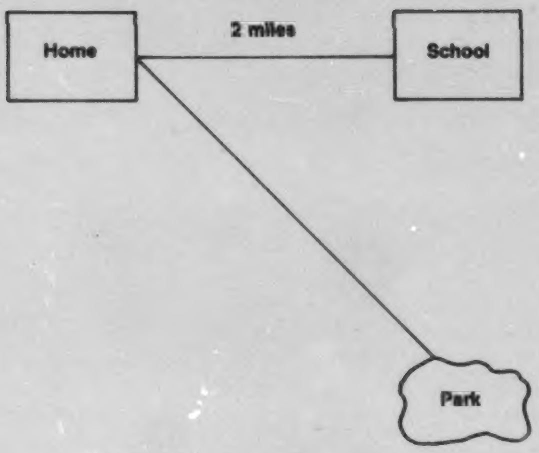
D.



2	**Green**
3	**Blue**
1	**Yellow**
9	**Red**

The chart above shows how many marbles Bob has of each color. If these marbles are in a bag and Bob takes one without looking, which color is he most likely to get?

A. Green
B. Blue
C. Yellow
D. Red



The map above shows how far Sarah lives from the school and how far she lives from the park. About how far does she live from the park?

1. about one mile
2. a little less than two miles
3. two miles
4. **more than two miles**

Figure 18
Concept Identification
Grade 4 — Mathematics
Spring 1984

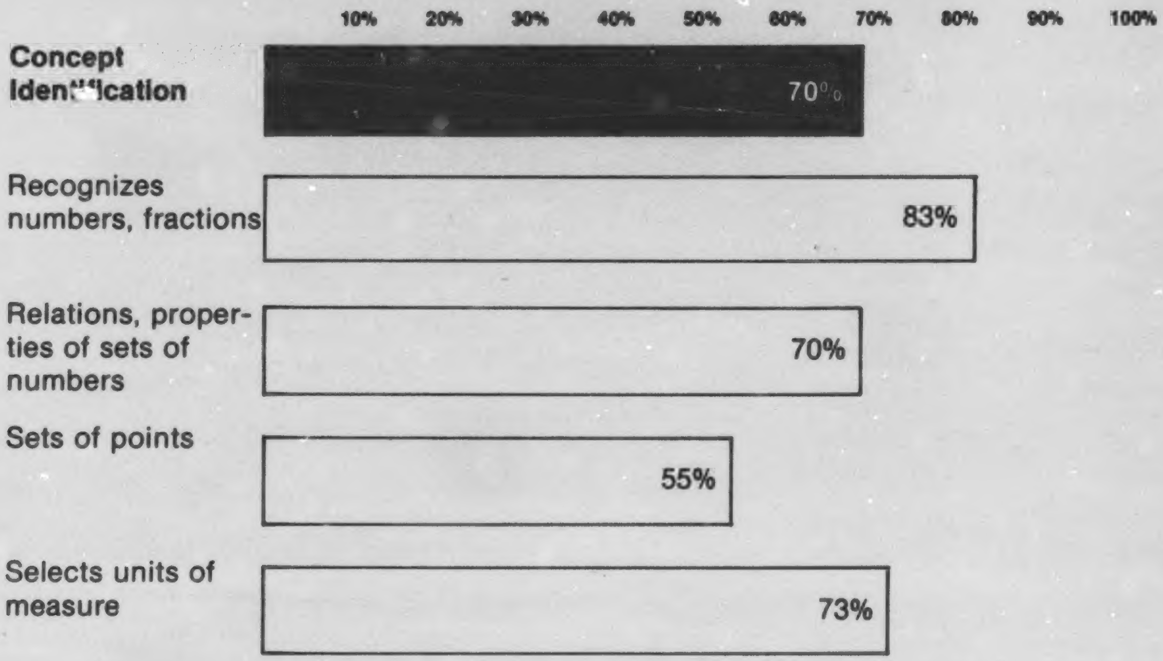


Figure 19
Component Operations
Grade 4 — Mathematics
Spring 1984

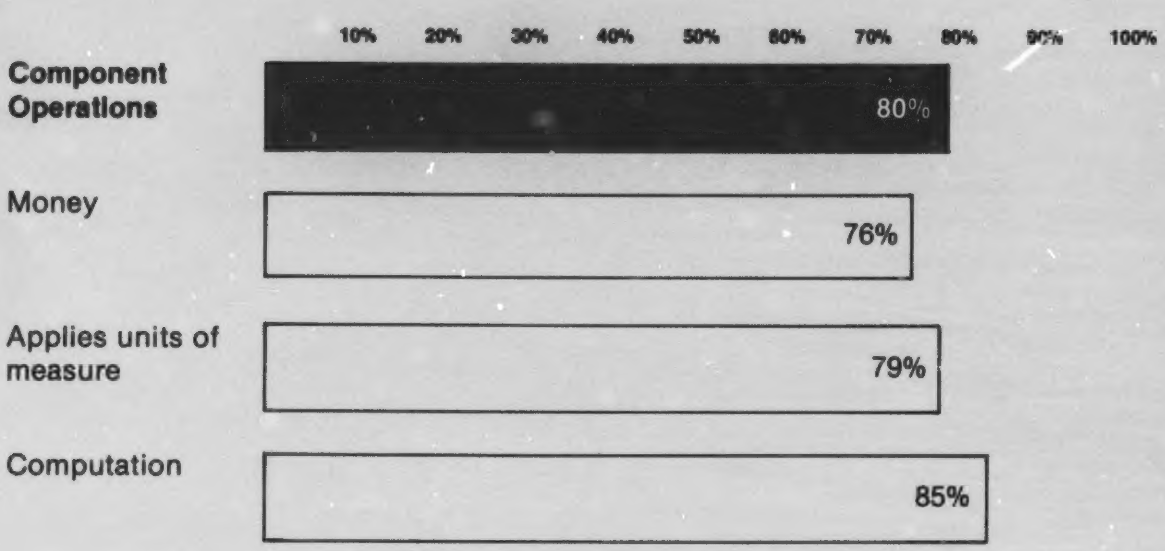
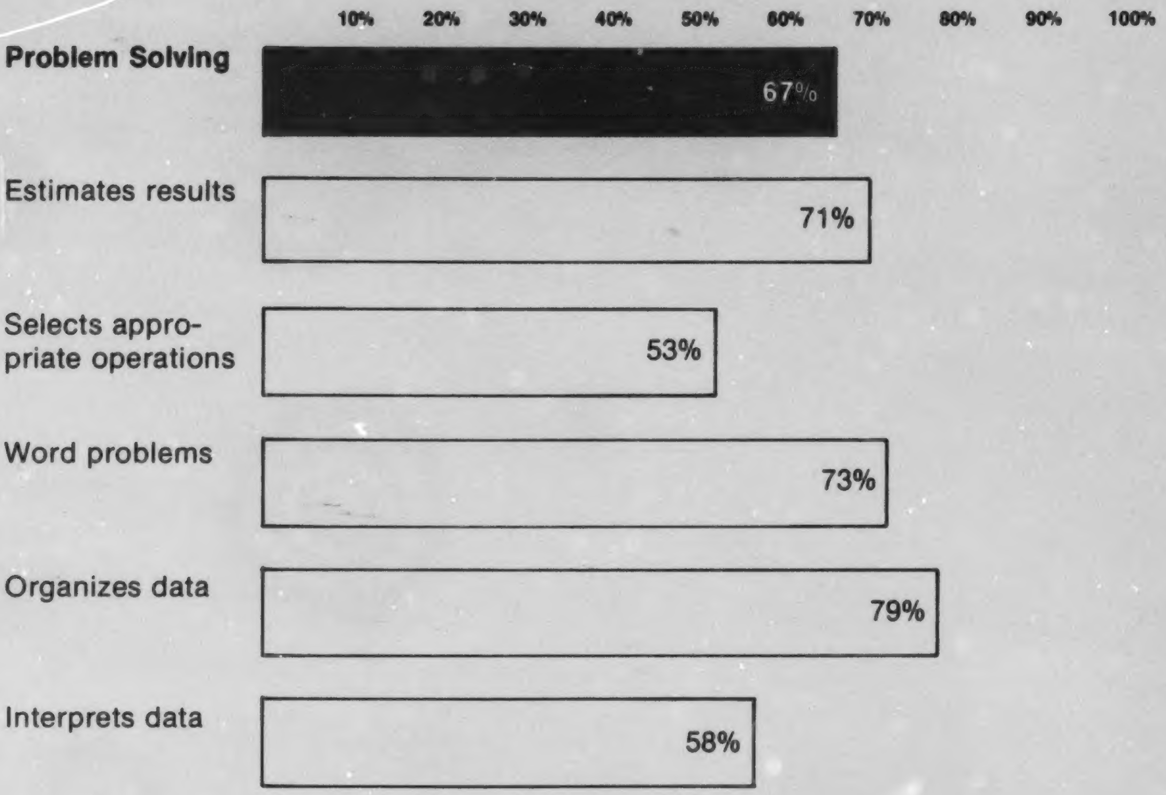


Figure 20
Problem Solving
Grade 4 — Mathematics
Spring 1984



Career Development — Grade 4

Four broad skill areas are addressed on the career development test which relate to an individual's career decisions and preparation. These include self-awareness — knowledge about one's own interests and abilities and about how to relate to and work with others; work and occupations — knowledge of effective work habits and about work and job fields; education — awareness of the importance of learning and relevance of education to career plans; and decision-making — skills in problem solving and application of such skills in making career and other life decisions. At the fourth grade level students are expected to demonstrate skills and understanding at an **awareness** level, e.g., being aware that they will work, that school experiences are related to working and to life in the home and community and that all types of work have value.

Career development test results are intended primarily for program evaluation. Each student is tested on only half the objectives, so the results represent the performance of a 50 percent sample of fourth graders statewide. Figures 21 through 24 present the 1984 performance of students by objectives within skill areas, while Figure 25 illustrates student progress over time. For 1984 student performance across skill areas is very similar, with about three quarters of the students achieving the various objectives. Within the skill areas, a few single objectives fall significantly above or below this level. For example, on seven objectives there was an 80 percent or better level of achievement. These include, among others, recognizing unique characteristics and abilities, recognizing socially acceptable behavior, understanding the relationship between personal interests and abilities and job families, and recognizing alternatives related to decision making. On the other hand, fewer than 60 percent achieved the objective which deals with the concept of work and the varied nature of jobs.

Figure 25 illustrates change in career development scores over the past five years using average achievement for skill areas. Although there was some dip in scores in 1982, generally since 1980 progress is seen in career development scores, just as is true in reading and in mathematics. The education area has remained somewhat lower than the other three skill areas. These objectives deal with the relevance of learning and school subjects to work and life situations. The lower performance may indicate that school subjects are taught with an academic emphasis without much reference to how the content applies to everyday situations.

Sample Items

Someone who likes to care for animals would probably enjoy a job as a

A. custodian
B. zookeeper
C. nurse
D. druggist

In class projects it is most important that each person do which of the following?

A. Assign jobs to others
B. See how well others do
C. Do his or her best work
D. See how long others take to finish

Cary is a member of the softball team and is expected to be at every practice. A friend invites Cary to go to a movie on a day of practice and Cary would like to go. What should Cary do?

A. Have someone call and say Cary can't come to practice.
B. Ask the coach about missing practice to go to the movie.
C. Ask the coach to have practice on a different day.
D. Thank the friend but go to softball practice anyway.

Figure 21
Self Understanding
Grade 4 — Career Development
Spring 1984

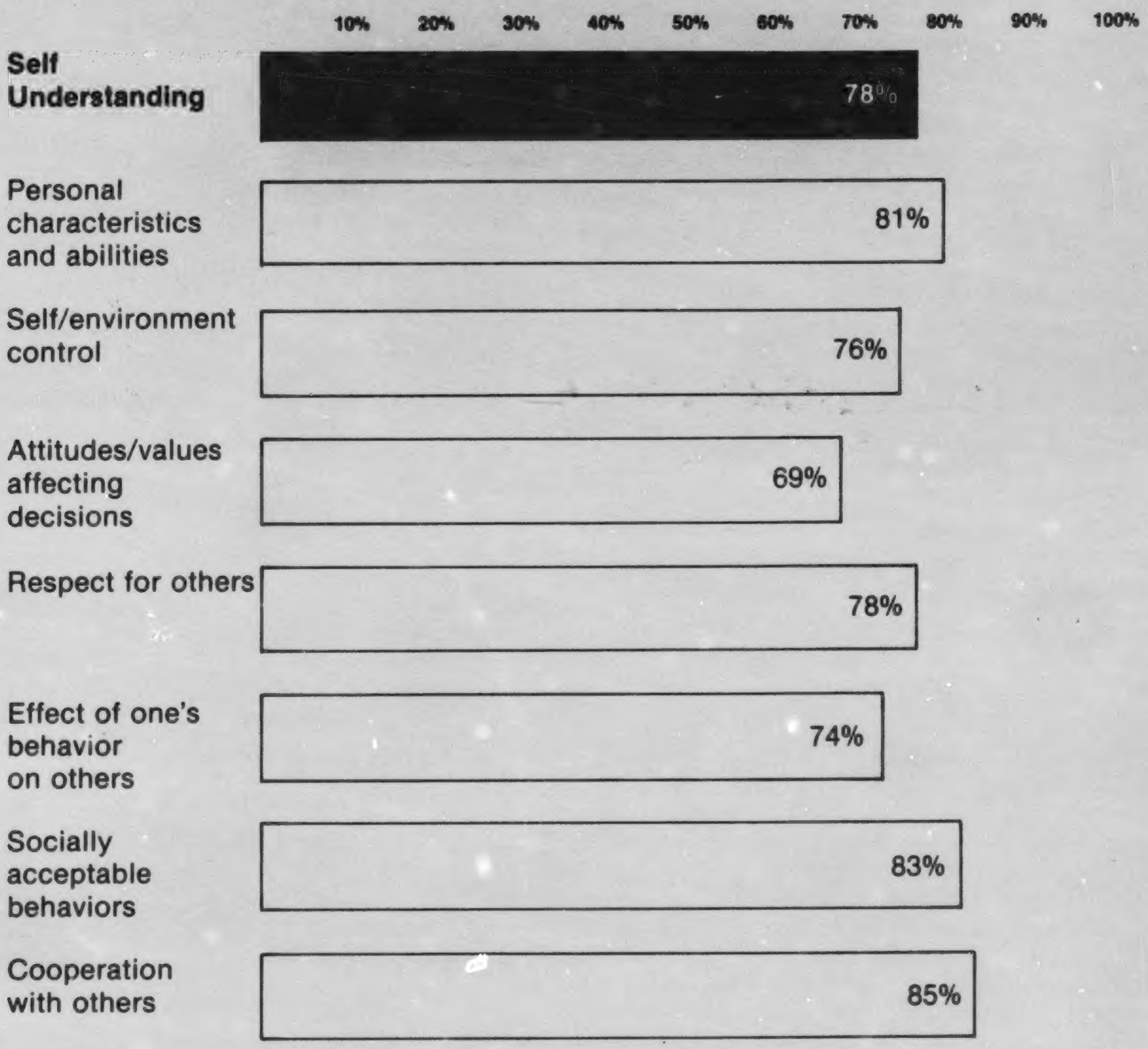


Figure 22
Work and Occupations
Grade 4 — Career Development
Spring 1984

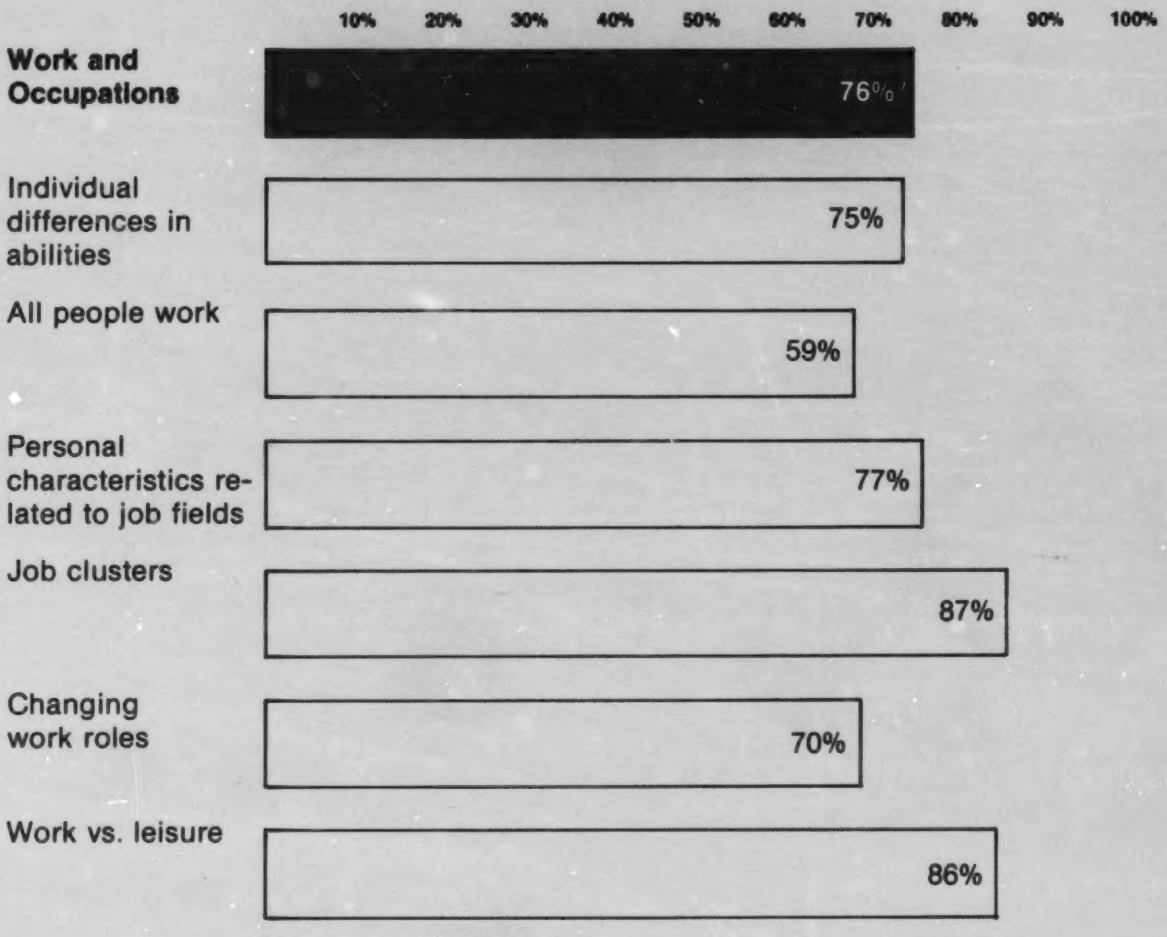


Figure 23
Education
Grade 4 — Career Development
Spring 1984

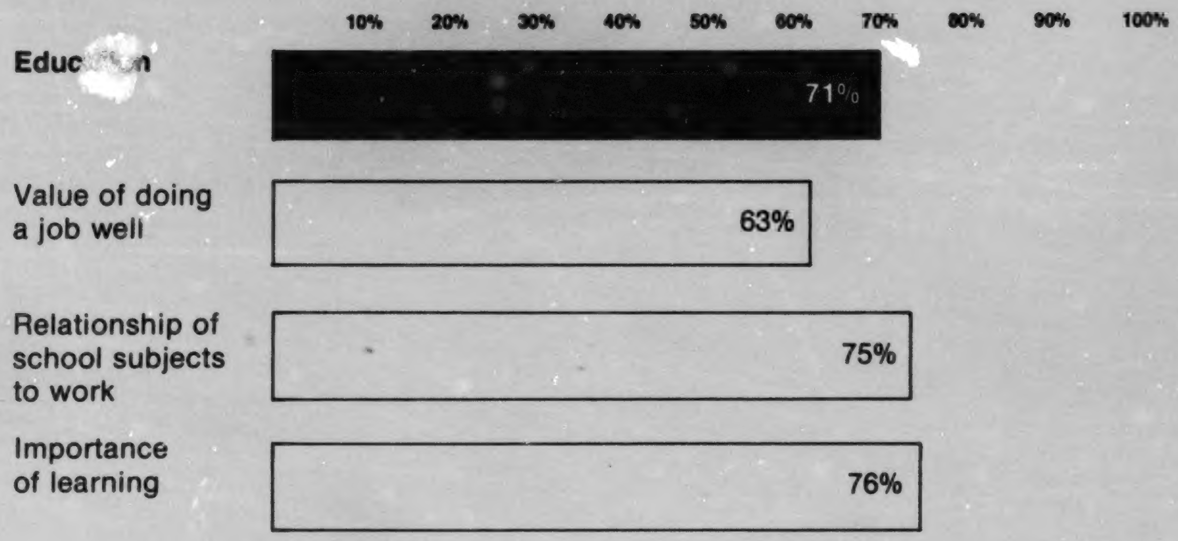


Figure 24
Decision Making
Grade 4 — Career Development
Spring 1984

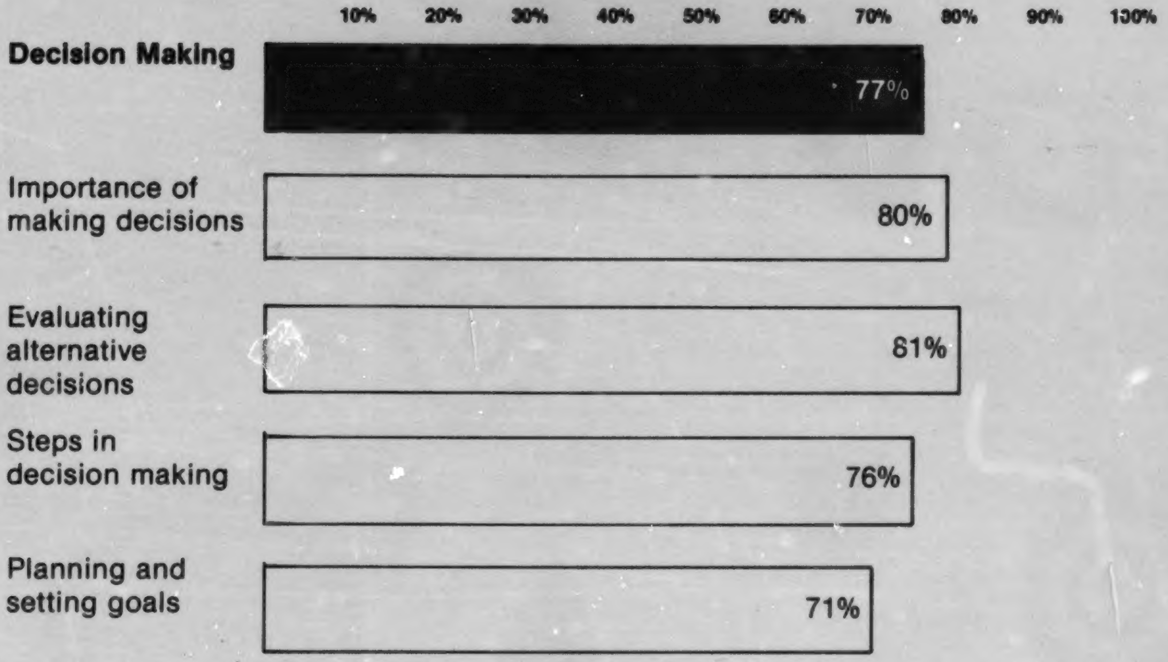
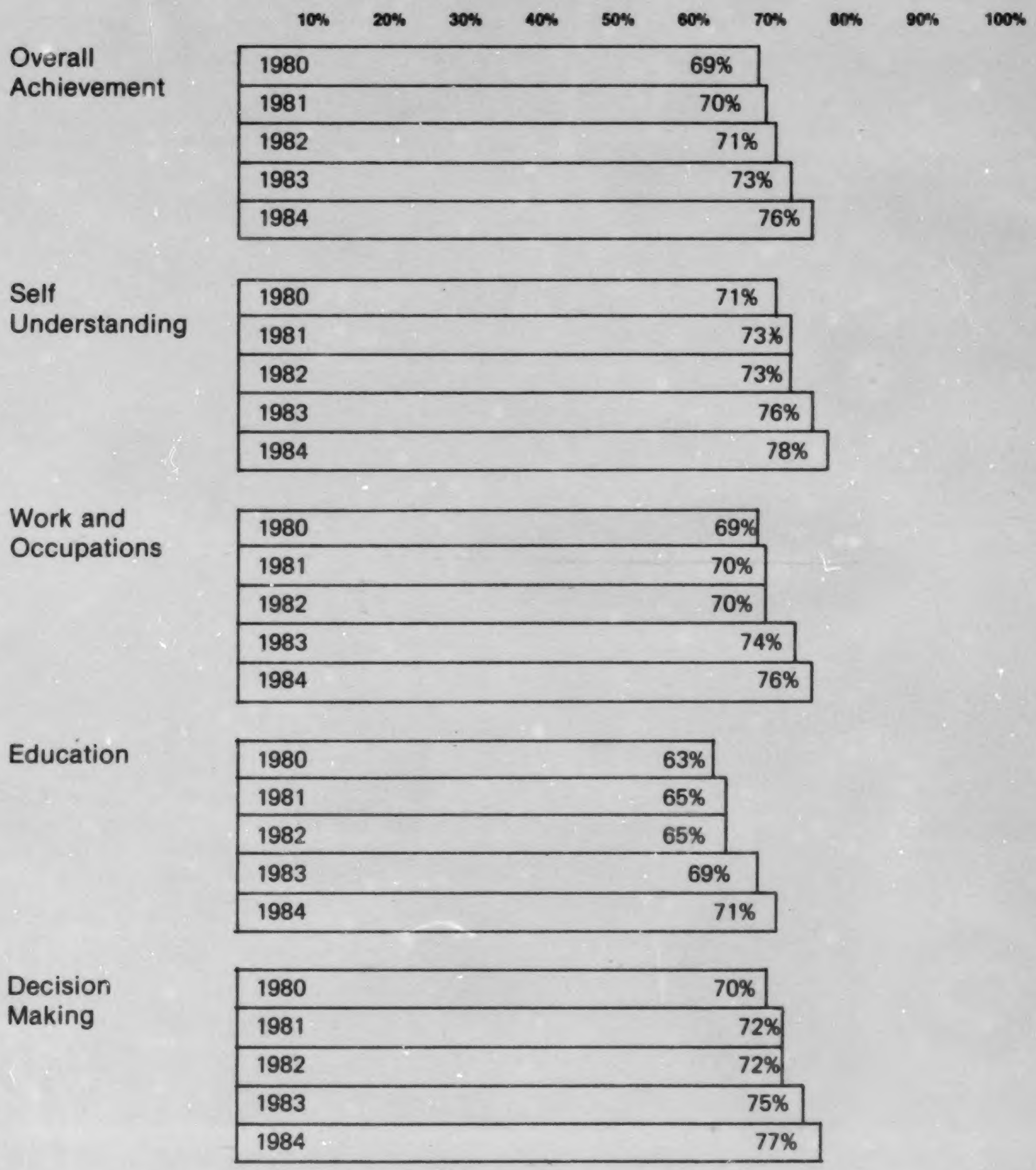


Figure 25

Career Development Summary
Achievement by Skill Areas
Grade 4



Historical Report — Grade 4

While percentage scores by objective are useful for comparing student performance on the various skills tested, they are less useful for looking at performance over time. As new forms of tests are introduced, there are differences between the old and new tests which must be taken into account when comparing student performance on the two tests. Such differences may be in terms of number of items on the tests, shifting emphasis in content, criterion levels of various objectives or overall difficulty of the tests. Adjustment for such differences can be made, however, if scores from both tests are converted to the same scale. Thus, student progress over time is best assessed using scale scores. For the fourth grade reading and mathematics tests, scale scores are computed for total test performance and for skill areas which represent a broader content domain than do single objectives. Scale scores are numbers between 100 and 300, and 1980 is the base performance year.

Figures 26 and 27 depict the longitudinal scores in reading and mathematics for grade four. As can be seen, there is a pattern of slow but steady growth in both content areas. Overall performance in reading and in mathematics for 1984 is at about the same level, whereas in previous years reading performance was somewhat superior to that in mathematics. This may be due in part to the fact that the 1984 tests reflect revised content and performance standards, making them more reflective of current curriculum and instructional practices, and to the fact that there was a conscious attempt to make the reading and mathematics more comparable tests in terms of overall difficulty.

As can be seen in Figure 26, the skill area of problem solving in reading is a new content area in 1984. However, some of the subskills which make up problem solving were included previously (for example, word attack skills and reference skills). The area of inferential comprehension has received much more emphasis in the 1984 test than previously. This may account for the lower score in this skill area this year. Strongest performance for fourth graders in reading appears to be in the area of literal comprehension, which requires understanding of information explicitly stated in written material.

In mathematics, performance in the three skill areas is relatively even. Students performed somewhat better in the area of component operations, which includes computation, solving word problems and using units of measurement.

Table 4 depicts the percentages of fourth grade students who achieved various numbers of objectives, regardless of which objectives. Since the reading and mathematics tests are new in 1984, there is no comparable data for past years. This data is available for the career development test, however. In the latter area, more students are achieving more objectives than in previous years, with 35 percent achieving all 10 of the objectives on which they were tested. In reading, 50 percent achieved three-fourths or more of the objectives, and in mathematics 61 percent achieved that number or more.

Figure 26
Historical Report
Grade 4 — Reading

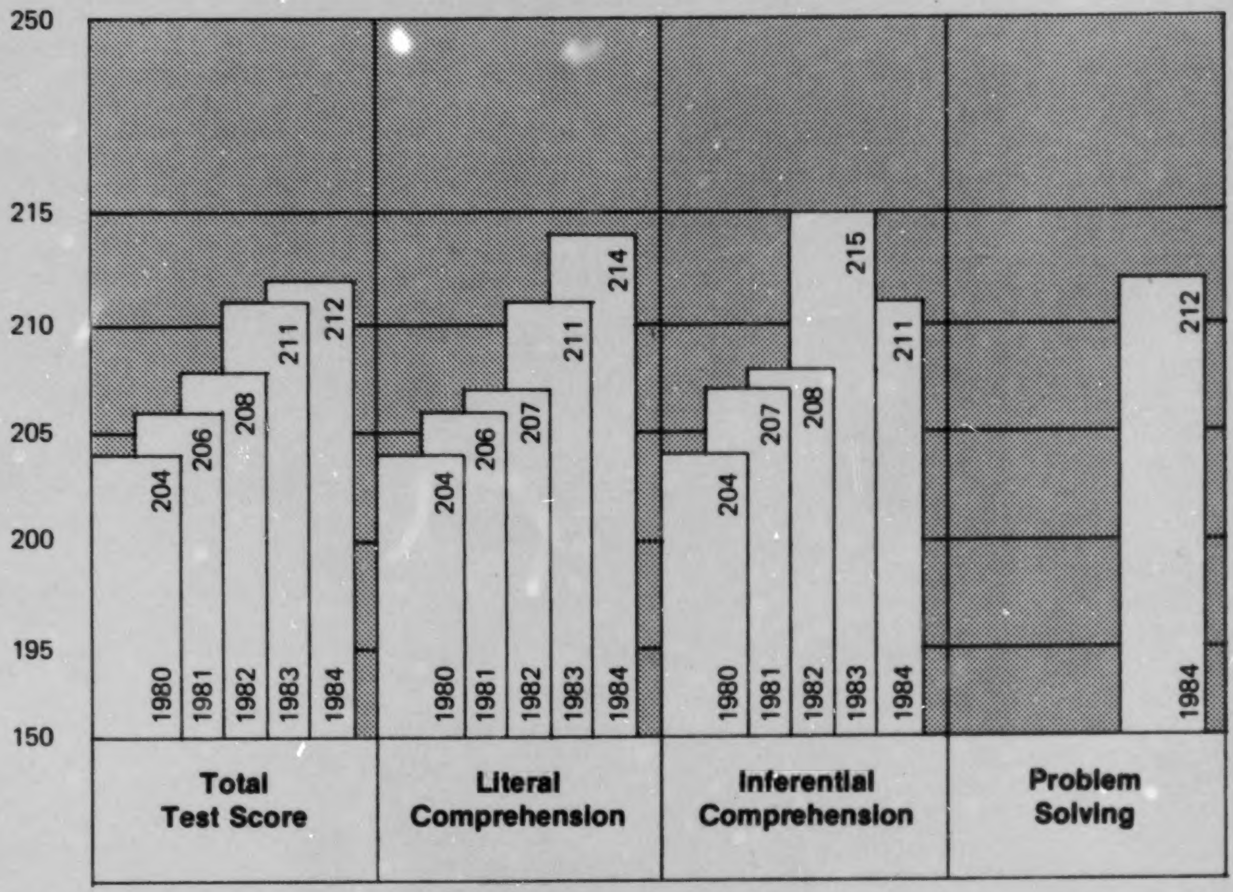


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Figure 27
Historical Report
Grade 4 — Mathematics

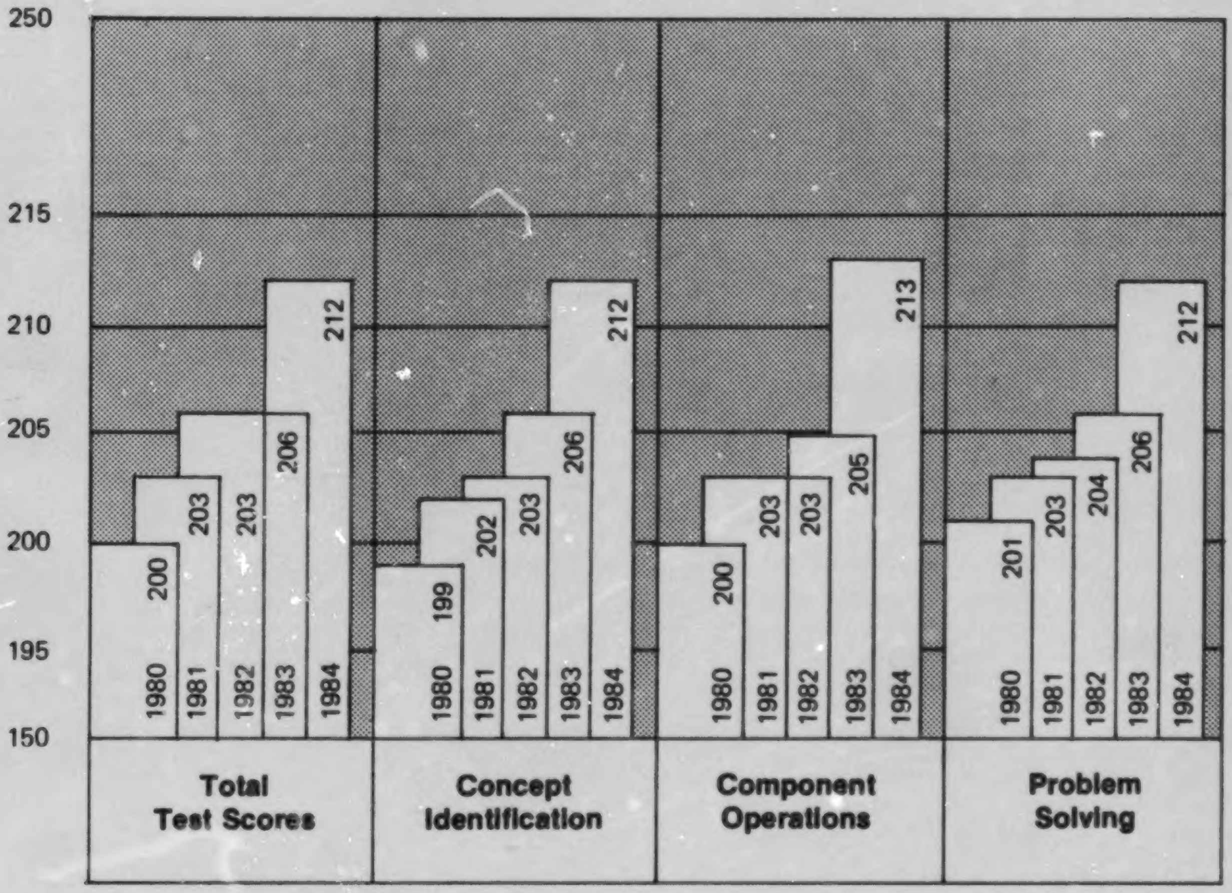


Table 4
Results by Selected Distributions of Objectives Achieved
Grade 4 — 1980-84

Percent of Students Who Achieved	1980	1981	1982	1983	1984
Reading					
8 objectives or more	*	*	*	*	50%
11 objectives	*	*	*	*	18%
Mathematics					
9 objectives or more	*	*	*	*	61%
12 objectives	*	*	*	*	27%
Career Development					
5 objectives or more	75%	77%	77%	81%	83%
10 objectives	28%	29%	29%	33%	35%

*Represents previous editions of the tests which prevent yearly comparisons beyond this point.

Test Results — Grade 4
Demographic and Educational Characteristics

As indicated in the discussion of first grade test results, the figures presenting results summarized by demographic and educational characteristics are provided to enable individual school systems to evaluate their performance in relation to other systems which have some similar characteristics.

In the analysis by geographic region (Figures 28 and 29), students in the north Georgia region, on the average, perform better on both the reading and mathematics tests than do the students in the other regions. The north Georgia scores are also slightly higher than the state mean scores shown in the Historical Report.

The analysis of scores by community type (Figures 30 and 31) refers to the performance of students in school systems of varying sizes. Students from urban fringe school districts (6,000 to 10,999 students) perform slightly better than their fourth grade counterparts in the largest school systems, and performance of both these groups is slightly better than the midsize or smallest systems. This is true for both reading and mathematics. Lowest performance was by students from the smallest school districts (2,999 students or less). Scores for the latter group also were below state mean scores.

Using percent of students receiving free lunch as a socioeconomic index, it is apparent that systems with the lowest percentage of students receiving free lunch have superior performance to that in the other groups (Figures 32 and 33). Higher percentages of students receiving free lunch generally reflects a higher proportion of educationally disadvantaged students in a school system population, and these students traditionally do not perform as well as their peers on standardized achievement tests. Again, the trends are similar for reading and mathematics score differences.

Figure 28
Average Scale Score by Geographic Area
Grade 4 — Reading
Spring 1984

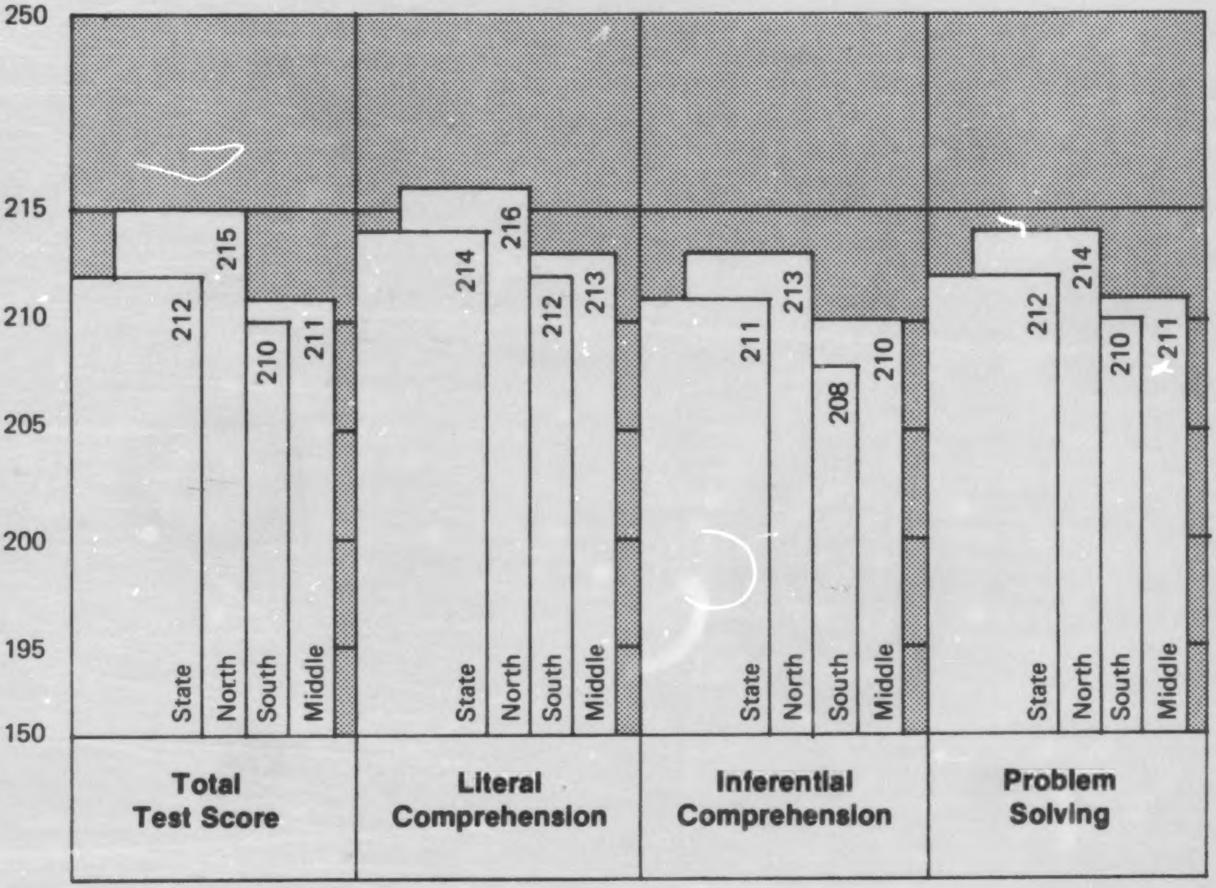


Figure 29
Average Scale Score by Geographic Area
Grade 4 — Mathematics
Spring 1984

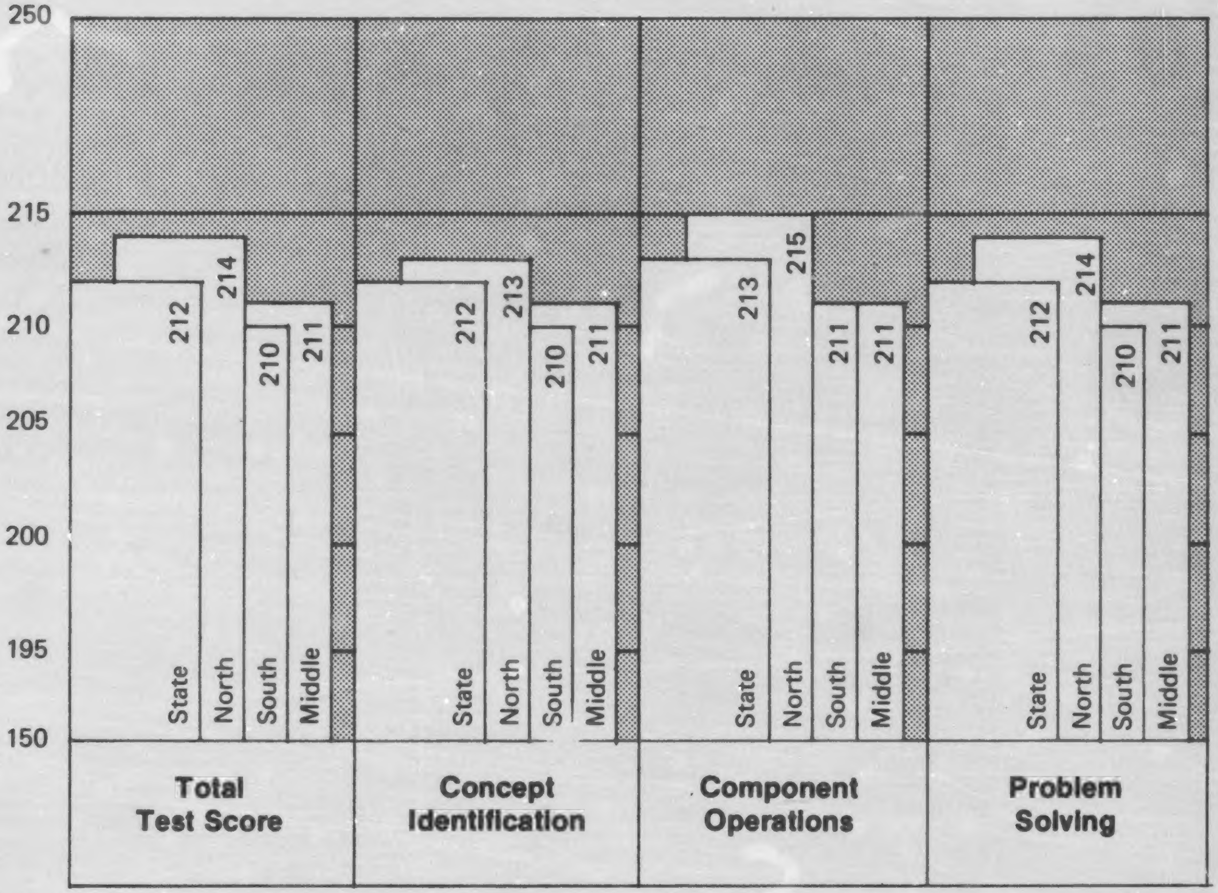


Figure 30
Average Scale Score by Community Type
Grade 4 — Reading
Spring 1984

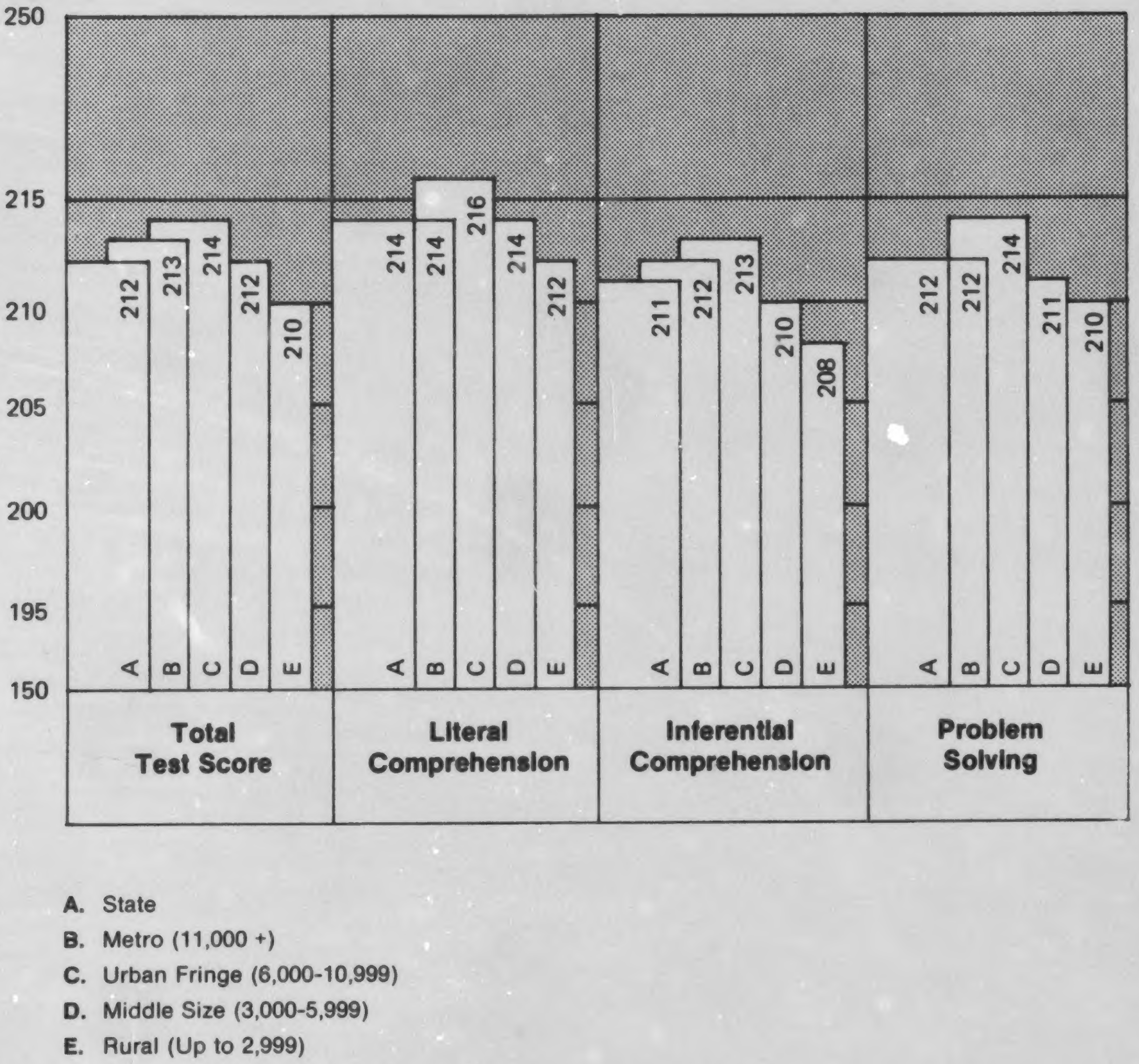
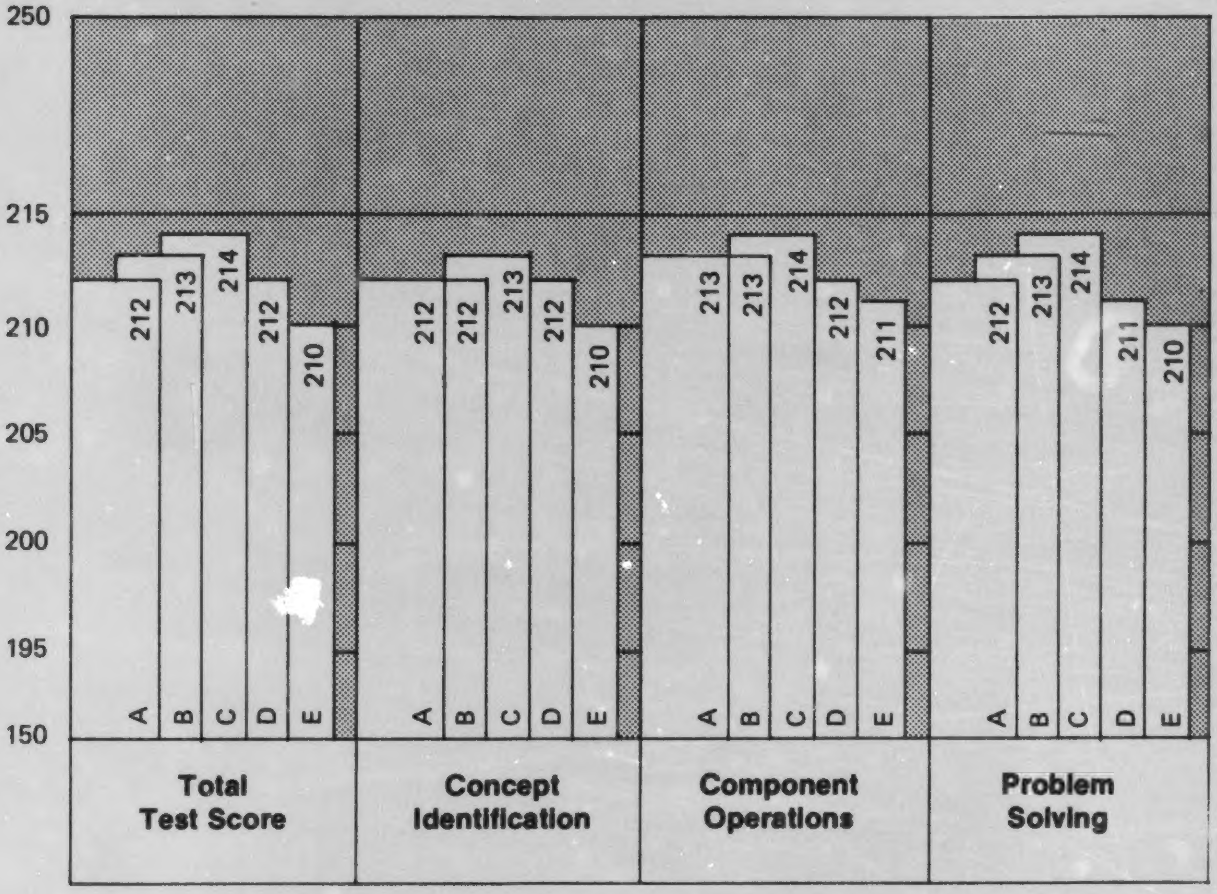
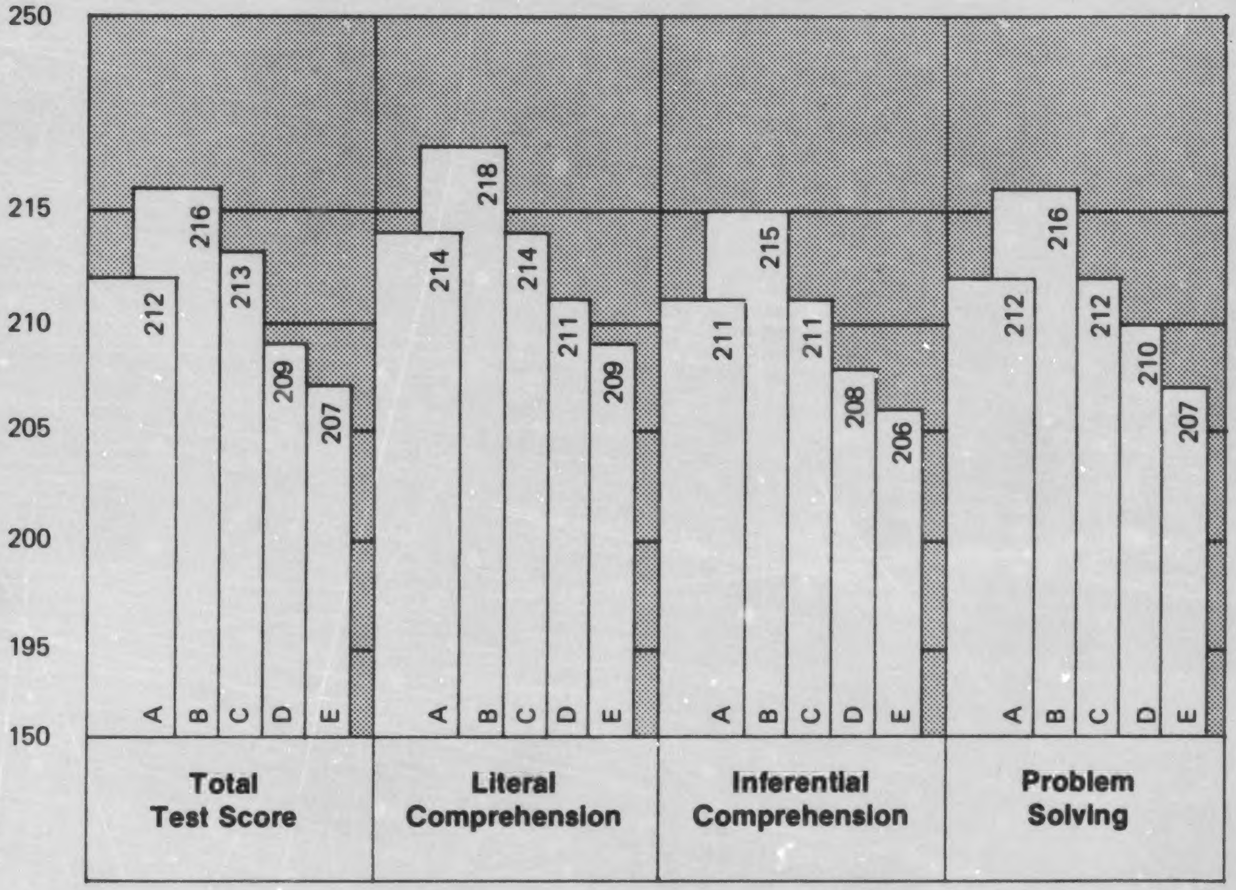


Figure 31
Average Scale Score by Community Type
Grade 4 — Mathematics
Spring 1984



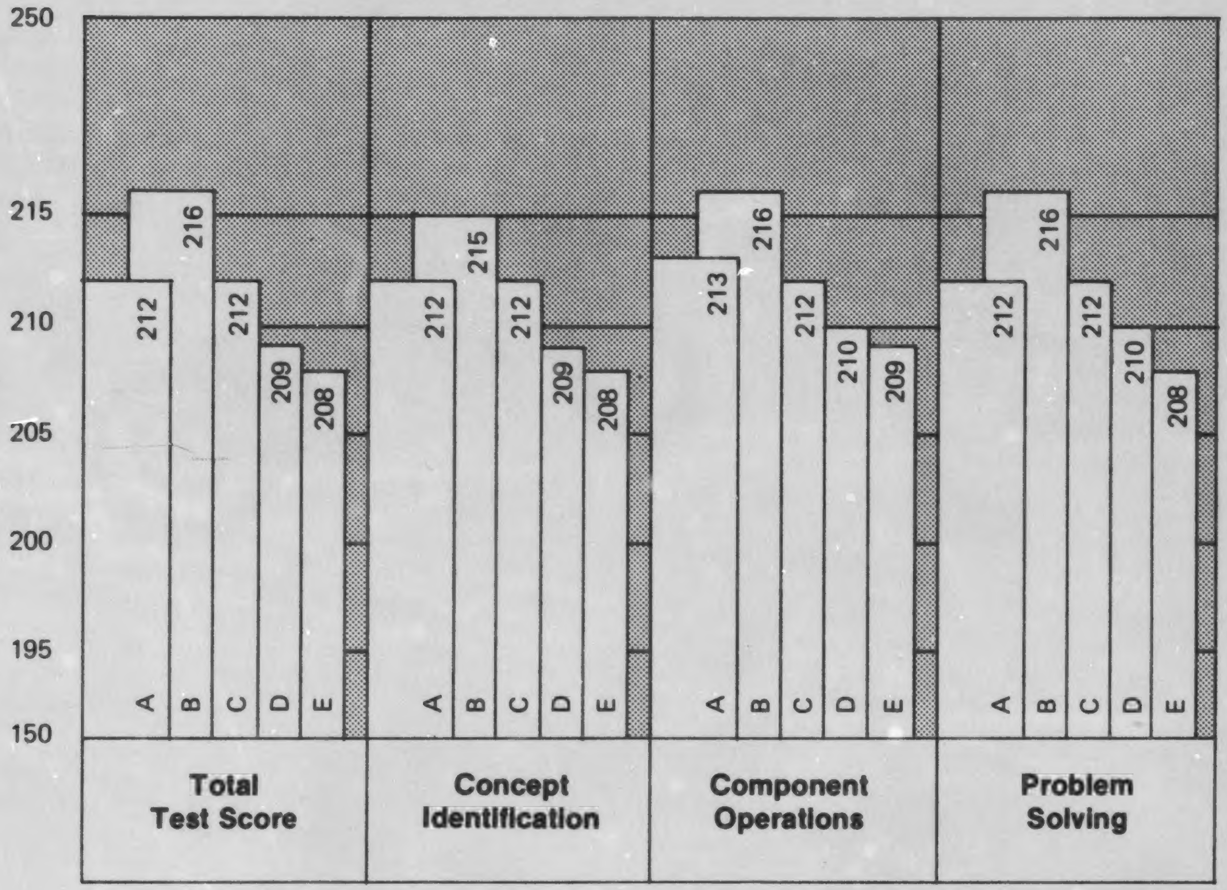
A. State
B. Metro (11,000 +)
C. Urban Fringe (6,000-10,999)
D. Middle Size (3,000-5,999)
E. Rural (Up to 2,999)

Figure 32
Average Scale Score by Free/Reduced Lunch
Grade 4 — Reading
Spring 1984



A. State
B. Less than 39%
C. 40%-54%
D. 55%-65%
E. 66%-100%

Figure 33
Average Scale Score by Free/Reduced Lunch
Grade 4 — Mathematics
Spring 1984



A. State
B. Less than 39%
C. 40%-54%
D. 55%-65%
E. 66%-100%

Student Performance — Grade 8
Criterion-Referenced Tests

Eighth graders are tested in reading, mathematics and career development. The third edition reading and mathematics tests introduced in 1983 were designed in part to help identify students who need additional instruction in the basic skills to pass the Basic Skills Tests (BST) administered in grade 10 and required for high school graduation. The skills measured by the grade eight tests are similar to those measured by the BST, and there is a similar emphasis on applied use of skills. However, the content of the grade eight tests is still geared to middle grades curriculum.

At the eighth grade level, students are performing slightly better on the mathematics than on the reading test objectives. Figures 34 through 39 which depict percentages of students achieving each objective show the lowest objective achievement in mathematics to be 67 percent and the highest objective 89 percent. Of the 12 objectives in mathematics, achievement was 80 percent or higher on four objectives and 70 percent or higher on another seven of the objectives. In reading, the individual objective achievement scores depicted in Figures 34 through 36 range from a low of 54 percent to a high of 90 percent. Four of the objectives are 80 percent or higher, but at the same time, four objectives are below 60 percent. These scores are discussed in detail in the following section.

Percentage of students achieving various numbers of objectives is shown in Table 5. Career development test results for individual objectives and over time are shown in Figures 40 through 43.

The longitudinal analysis in the Historical Report (Figures 45 and 46) is explained on page 77. Overall performance reported in scale scores on these graphs shows that students are performing slightly better in 1984 on the mathematics test than on the reading test.

Skills measured by the tests, representative test items and results are described below.

Reading Skills and Results — Grade 8

Skill Area: Literal Comprehension

This skill area involves understanding information which is explicitly stated in written material. It includes being able to interpret various types of instructions (e.g., on labels or forms); being able to recognize the major point and various details and relationships when they are directly stated in written material and being able to tell which statements in a passage are facts and which represent someone's opinion.

Student performance on these skills is somewhat uneven (see Figure 34). Approximately 80 percent are able to understand the difference between fact and opinion while fewer than 60 percent achieved the objectives dealing with comprehension of explicitly stated information and interpreting instructions. While students had little difficulty grasping main ideas and details in what they read, they had more difficulty with items requiring identification of cause and effect and sequences of events in passages. **(See Figure 34).**

Sample Items

Name ______________________________
Street Address __________________________
City ________ State ______ Zip Code ______

Which shows all the information Bo Guard should provide to complete the above catalog order form?

A. Bo Guard
Mt. Pleasant, 31600

B. Bo Guard
Mt. Pleasant, Georgia
728-4290

C. Bo Guard
118 Center Street
Mt. Pleasant, GA 31600

D. Bo Guard
118 Center Street
Mt. Pleasant

The following conversation occurred between Bart and Joe. Which of the following statements is a FACT?

A. Bart: I made twenty dollars mowing lawns Saturday.

B. Joe: Wow! That's a lot of money.

C. Bart: Mowing is a hard way to earn twenty dollars.

D. Joe: I guess so! It was sure hot Saturday, too.

Skill Area: Inferential Comprehension

This skill area tests understanding of information which can be determined from written material even though it is not directly stated. Students are asked to recognize main ideas, details and relationships which are implied. Some items deal with identifying word meanings or figurative phrases using the context in which they are found, while others deal with recognizing appropriate word forms and/or word order in sentences. Another type of item involves recognizing the intent of material that is meant to persuade the reader (e.g., advertisements).

While overall performance is fairly good (73 percent average achievement for the various objectives), performance on specific objectives again is somewhat uneven. While only 58 percent of the students achieved the objective dealing with inferred main ideas and details, students performed well on items in which they use context clues to identify words or expressions which are unfamiliar to them (68-90 percent) and on items in which they must recognize the intent to persuade or mislead in material they read (76 percent achieving the objective). **(See Figure 35).**

Sample Items

Use GLOW — the toothpaste that makes teeth sparkle! GLOW brightens smiles and freshens breath. GLOW contains fluoride to prevent cavities. Buy GLOW today!

The main purpose of the advertisement is to

A. make you smile more.
B. promote GLOW toothpaste.
C. encourage good dental health.
D. compare GLOW to another toothpaste.

The Georgia coast reaches out to touch the mother sea,
The Georgia border to meet her sister states.

In the poem, Georgia is treated as if it were a

A. body of water
B. herd of animals
C. group of friends
D. member of a family

Skill Area: Problem Solving

As measured by the reading test, problem solving skills are those involved in locating, recognizing, interpreting and evaluating information needed for making decisions or solving problems, whether in the context of academic materials, everyday or employment-related materials. Skills include identifying and using reference materials and recognizing information necessary to make decisions. Students also are asked to use information in the material they read to make comparisons, predictions, generalizations and conclusions about what they have read, what might be a likely result or what might apply to other events or situations.

The problem solving area in particular reflects what might be termed "application" of basic skills. This is a relatively recent emphasis in the eighth grade tests tying in to the use of eighth grade test results to predict student performance on the High School Basic Skills Tests. The eighth grade tests now contain many more items which are written in an everyday context and which require students to apply what they read in making judgments and decisions. Again, students perform well in certain of the skills, in particular drawing conclusions from what they read (84 percent achievement) and recognizing what information is relevant to solving problems (85 percent). They did less well on items dealing with reference sources and with making predictions and comparisons. **(See Figure 36).**

Sample Items

The easiest and quickest way to find an article you read some time ago in a magazine is to look through

A. the card catalogue
B. an encyclopedia
C. the index to magazines
D. past issues of magazines

The smallest member of the storm family is the tornado. It is quite tiny when compared with the gigantic hurricane. A hurricane roams for thousands of miles with its path spanning hundreds of miles. In contrast, a tornado moves along only about 15 to 20 miles before it dies down and usually is only about a quarter of a mile wide. However, a tornado is more powerful and usually does much more damage than a hurricane.

According to the passage, why are tornadoes considered more dangerous than hurricanes?

A. They travel shorter distances than hurricanes.
B. They have more power than hurricanes.
C. They move more slowly than hurricanes.
D. They affect a smaller area than hurricanes.

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Figure 34
Literal Comprehension
Grade 8 — Reading
Spring 1984

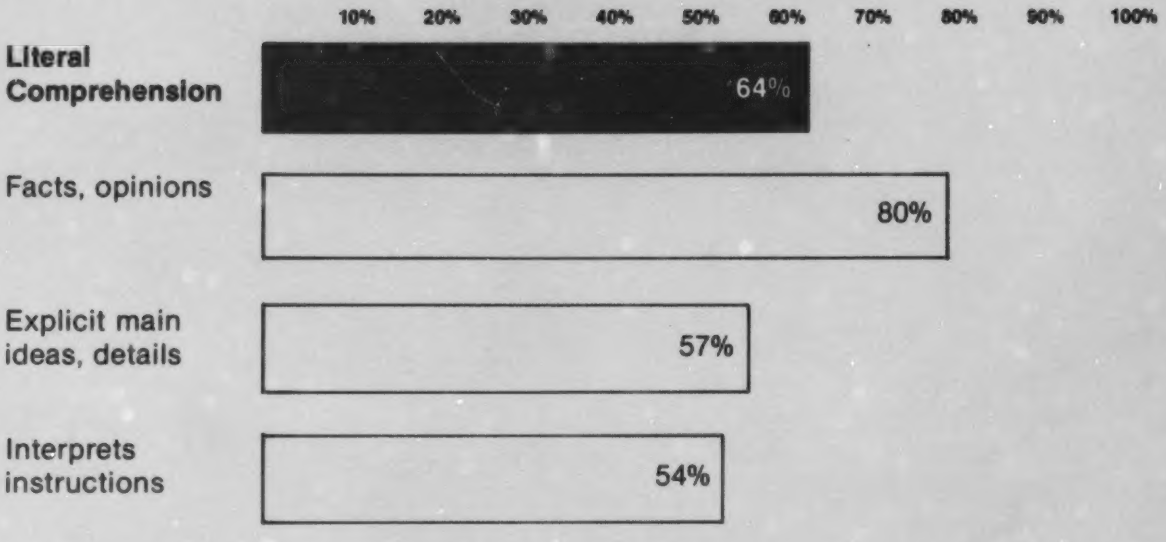
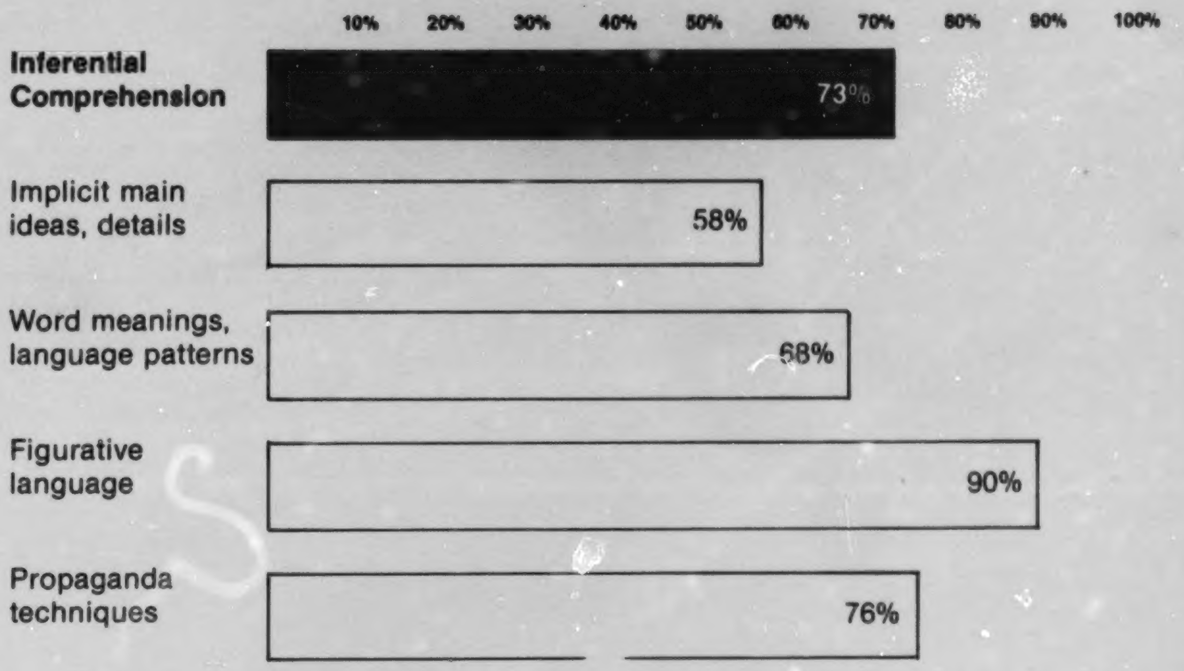


Figure 35
Inferential Comprehension
Grade 8 — Reading
Spring 1984



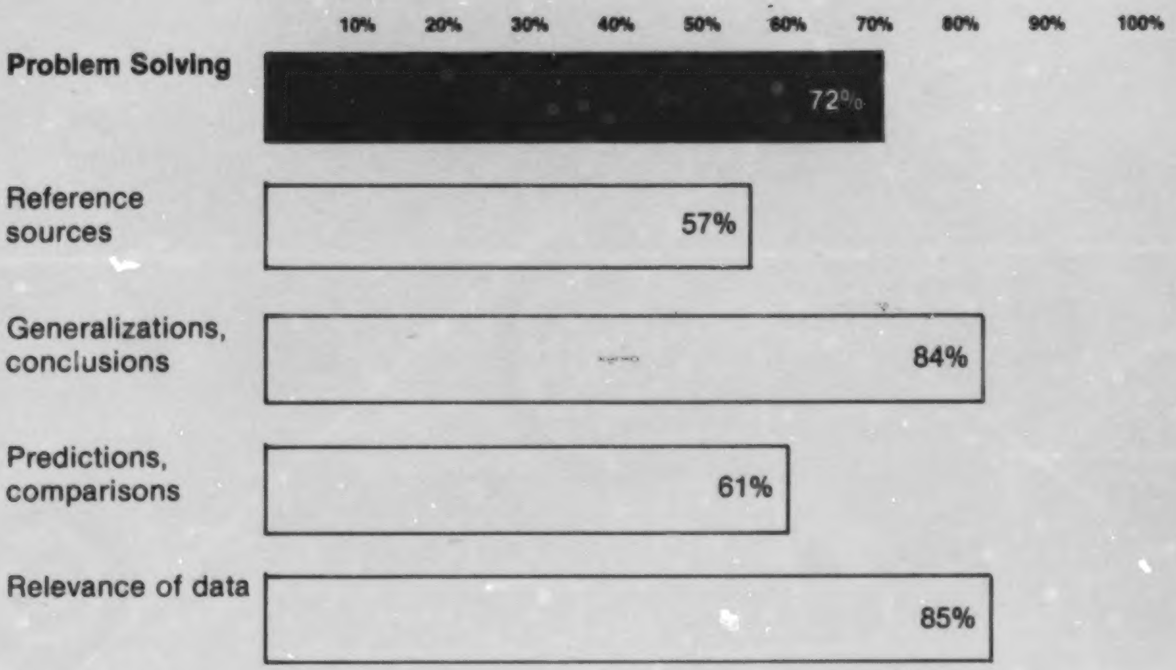


Figure 36
Problem Solving
Grade 8 — Reading
Spring 1984

Mathematics Skills and Results — Grade 8

Skill Area: Concept Identification

This skill area involves understanding basic vocabulary and terms used in mathematics, as well as relationships between and among different types of numbers. Relationships include such things as understanding how to change words to numerals, how to change decimals to percentages, how to change fractions to equivalent fractions or decimals or the reverse of any of these. Students are expected to know standard geometric shapes (e.g., triangle, cube) and geometric properties and dimensions (e.g., perpendicular, plane /solid) and the appropriate units to use for various types of measurement (e.g., length, area, volume). Other items deal with properties of numbers and operations.

The average achievement across these objectives is slightly less than 72 percent. Students do fairly well on items requiring them to change numbers from one form to another (e.g., fractions to decimals), to use relations and properties of numbers and to select appropriate units of measure. They do somewhat less well in identifying geometric relations and properties (67 percent achievement). **(See Figure 37).**

Sample Items

What is the correct way to write seventeen and three hundreths?

A. 17,300
B. 17.300
C. 17.03
D. 17.003

What is NOT equal to 2 3/4?

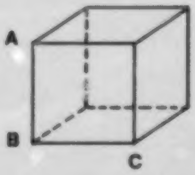
A. 2.34
B. 2.75
C. 11/4
D. 2 6/8

Which unit of measurement should be used to weigh a penny?

A. kilogram
B. kiloliter
C. liter
D. gram

A calculator is programmed to multiply each number punched by 5 and then add 2. If 8 is punched, what number comes up on the calculator?

A. 18
B. 21
C. 42
D. 80



Which is true of the cube above?

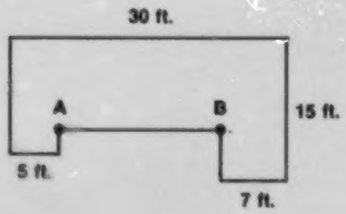
A. Length AB > length BC
B. Length AB < length BC
C. AB is perpendicular to BC
D. AB is parallel to BC

Skill Area: Component Operations

This skill area involves actions using numbers. The focus is on computation — addition, subtraction, multiplication and division using whole numbers, fractions, decimals, integers and percents. Some items require the application of formulas and units of measurement to determine length, area, volume, weight, time, temperature and amounts of money. There are also items asking students to determine the likelihood of a specific occurrence.

Student performance on these types of items is generally quite good. Approximately 82 percent achieve the objective dealing with computation and more than 90 percent the objective determining the probability of events occurring. Performance using formulas and various units to determine various measurements is somewhat lower at 72 percent. **(See Figure 38).**

Sample Items



In the floor plan above, what is the distance from A to B?

A. 8 ft.
B. 15 ft.
C. 18 ft.
D. 20 ft.

Chris is to have a 5-pound roast ready by 7:00 p.m. If the roast needs to cook 30 minutes per pound, what time should Chris start cooking it?

A. 2:00 p.m.
B. 4:30 p.m.
C. 5:00 p.m.
D. 9:30 p.m.

261
X503

A. 131,283
B. 104,283
C. 13,833
D. 11,133

8,596 ÷ 28 =

A. 37
B. 307
C. 370
D. 3, 007

5 - 1.35

A. 1.15
B. 1.30
C. 3.65
D. 4.67

3 1/2
+2 1/3

A. 5 2/5
B. 5 2/3
C. 5 5/6
D. 5 1/6

Skill Area: Problem Solving

As measured by the mathematics test, problem solving items require students to **apply** basic mathematical concepts or operations. A portion of the items measure understanding of steps required to set up a problem and reach a solution, including some dealing with collecting and organizing whatever data might be needed to reach a solution. Other items are simple word problems in which the student actually finds the result, evaluates the appropriateness of several results given or estimates the result without working it out.

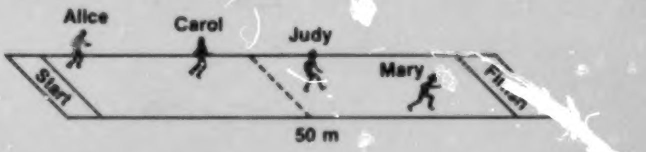
Students in general are performing well on these objectives (average achievement 79 percent). They do exceptionally well in problems involving estimations of results and with items in which they must select the best organization of data needed to solve problems (87 percent achievement). Poorest performance for this group of objectives was 73 percent achievement on the items which are word problems involving more than one operation or step. **(See Figure 39).**

Sample Items

Step 1: 20% of $30 = $6
Step 2: $30 - $6 = $24

The two steps above give the amount needed to buy which of the following?

A. A $30 sweater on sale for $6
B. A $6 sweater marked down 20%
C. A $24 sweater marked down 30%
D. A $30 sweater marked down 20%



Which girl has run about 1/3 of the track distance?

A. Alice
B. Carol
C. Judy
D. Mary

Attendance
at
Football Games

Sept. 24	2,400
Oct. 6	2,000
Oct. 13	3,000
Nov. 1	2,000
Nov. 15	4,200

The mean attendance at the football games was?

A. 2,800
B. 2,720
C. 2,400
D. 2,000

A car travels 3 kilometers in 2 minutes. At the same rate, it will travel 13 kilometers in

A. 4 minutes
B. 6 minutes
C. 8 minutes
D. 18 minutes

Figure 37
Concept Identification
Grade 8 — Mathematics
Spring 1984

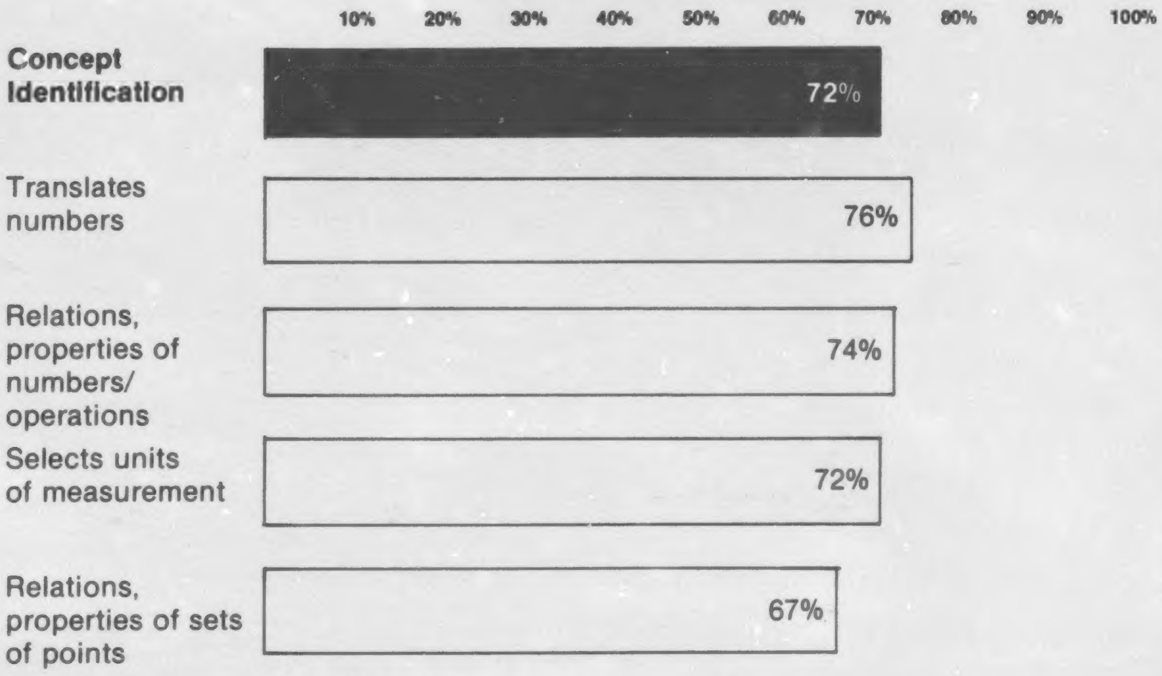


Figure 38
Component Operations
Grade 8 — Mathematics
Spring 1984

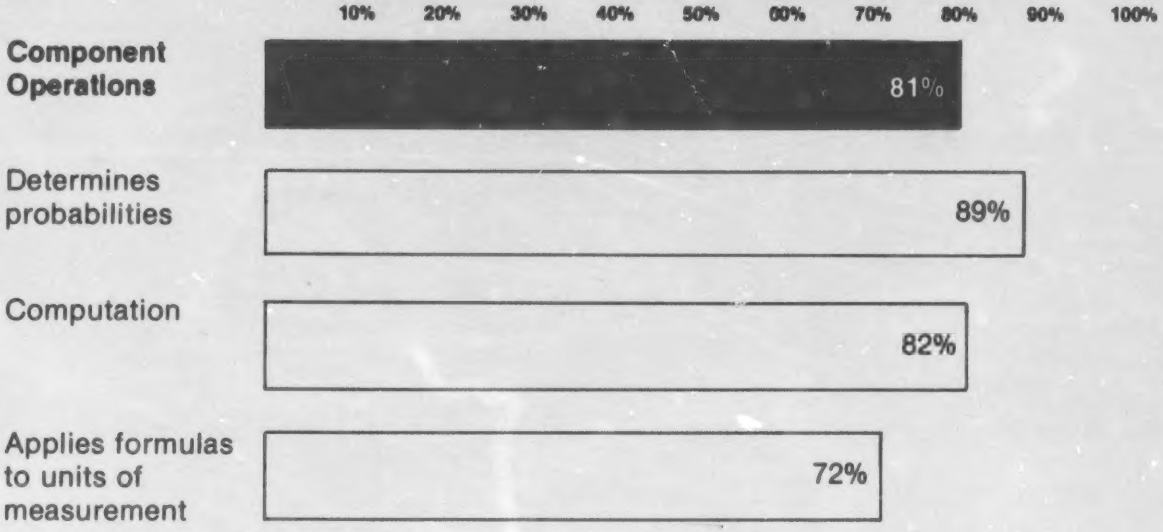


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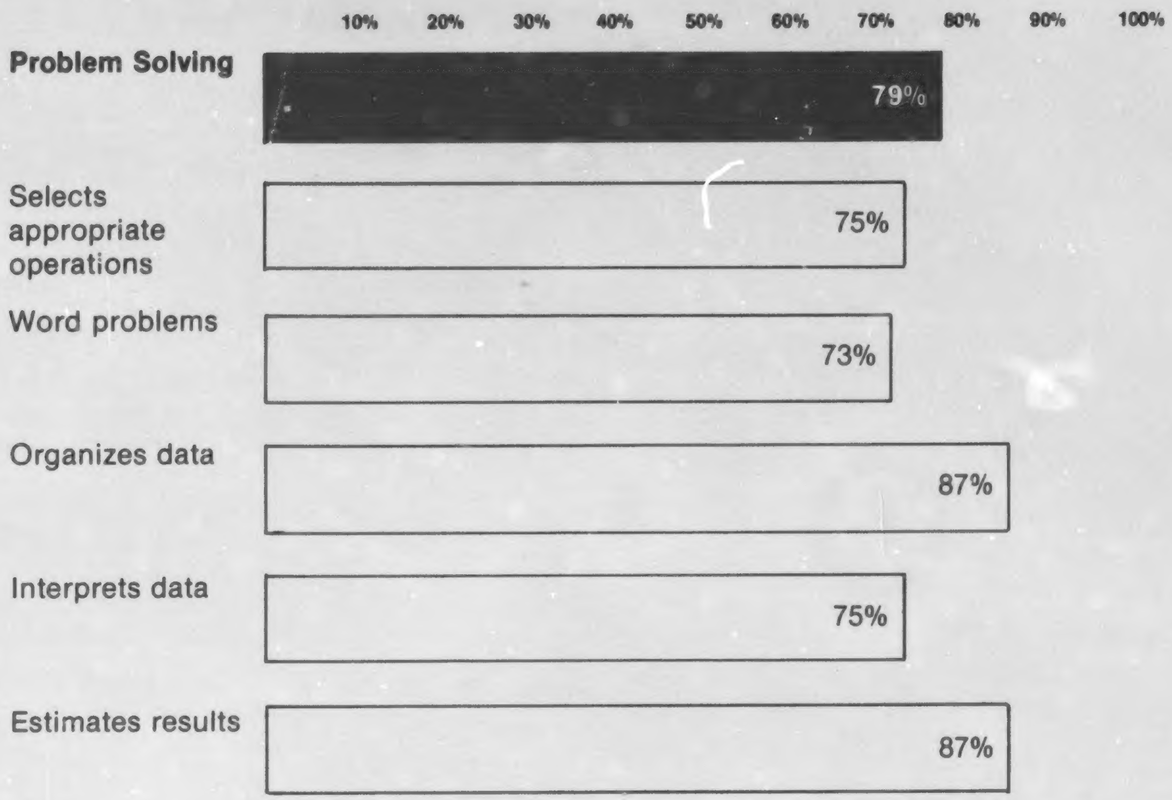
Figure 39
Problem Solving
Grade 8 — Mathematics
Spring 1984



Career Development — Grade 8

The career development skill areas addressed at the eighth grade level are the same as for grade four — self-awareness, work and occupations, education and decision making. While the fourth grade objectives emphasize awareness of concepts, at the eighth grade level students are expected to demonstrate somewhat more capacity in similar skills and a broader range of skills. Career development programs for this level generally emphasize **exploration,** and the test items reflect this in requiring students to demonstrate a broader knowledge of career resources, potential careers and job-seeking skills.

As in grade four, any one student takes items covering only half the objectives. Performance for 1984 eighth graders is reported in Figures 40-43; Figure 44 illustrates progress since 1980. All skill areas have shown some increase since 1980. However, in a reverse of grade four, eighth graders perform the best on education objectives, particularly on items relating to job-seeking skills and knowing the preparation needed for various job fields. As with fourth graders, eighth graders do less well on items which relate school subjects to everyday life.

The weakest skill area overall for eighth graders is work and occupations. Within this skill area, students do well on the items relating to sources of vocational information (81 percent achievement), but they do much less well on items requiring identification of job characteristics which relate to career choice and on those which deal with the idea of occupational clusters, or interrelated families of jobs (64 and 71 percent achievement). The latter two objectives probably deal with concepts not addressed in many schools until students begin serious career exploration.

Sample items

Which of the following groups of workers is most likely to be laid off first?

A. Skilled
B. Semiskilled
C. Unskilled
D. Professional

All of the following jobs are part of the health occupational group EXCEPT

A. billing clerk
B. medical technician
C. x-ray technician
D. licensed practical nurse

Which of the following would be most help to you in making a career decision?

A. Knowing your height and weight
B. Knowing what is important to you
C. Knowing what school to attend
D. Knowing what your friends think

A high school student is writing a letter for a summer job. The letter should include information about all of the following EXCEPT

A. special skills the student has
B. years of education the student has
C. how to contact the student
D. how the student will ride to work

Figure 40
Self Understanding
Grade 8 — Career Development
Spring 1984

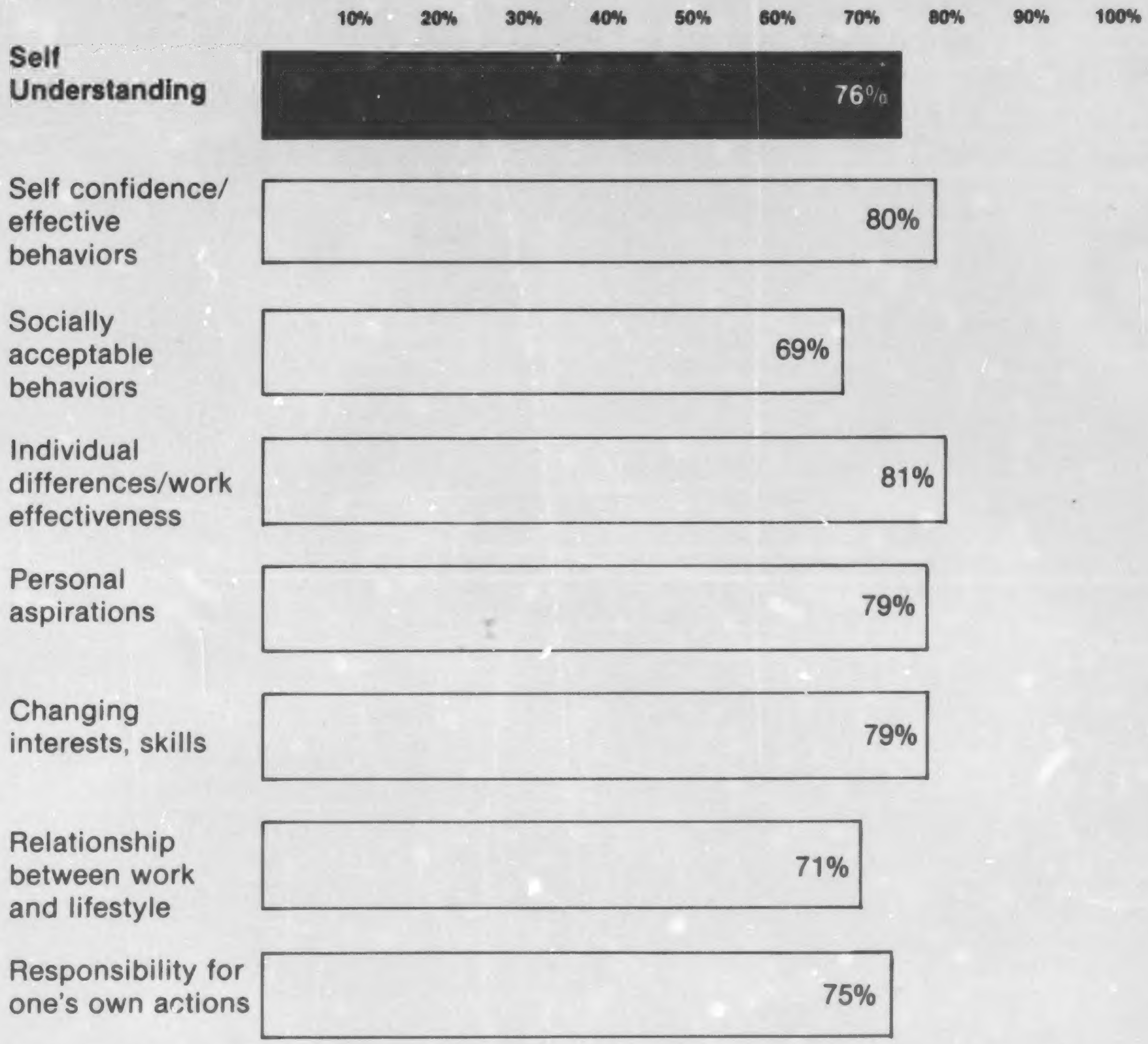


Figure 41
Work and Occupations
Grade 8 — Career Development
Spring 1984

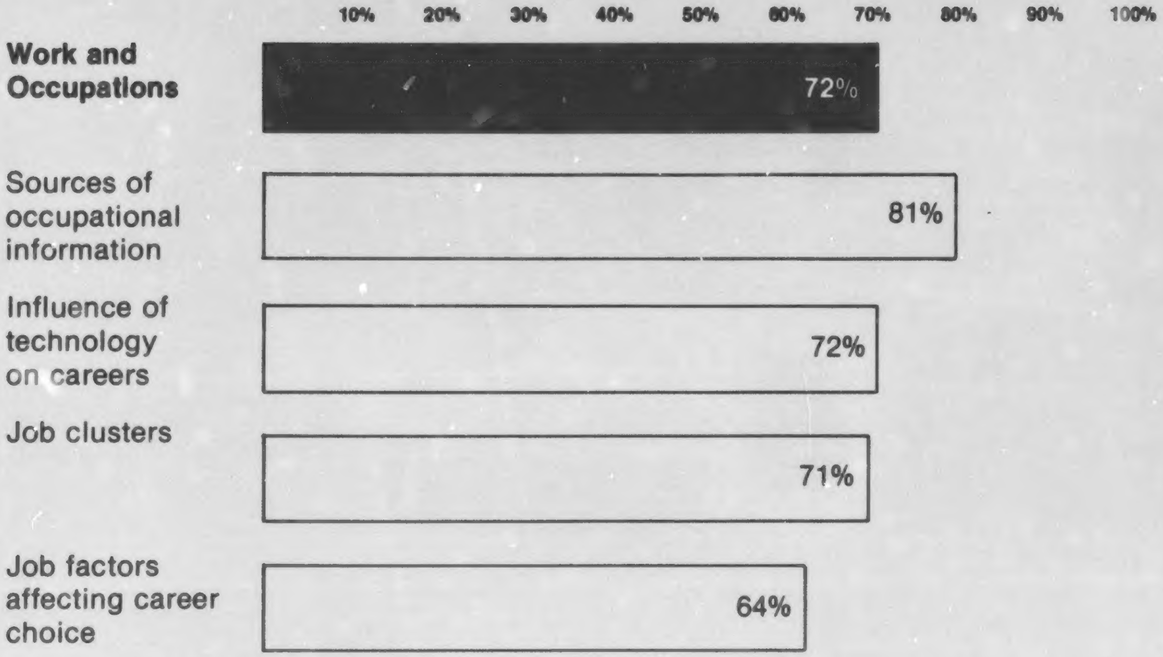


Figure 42
Education
Grade 8 — Career Development
Spring 1984

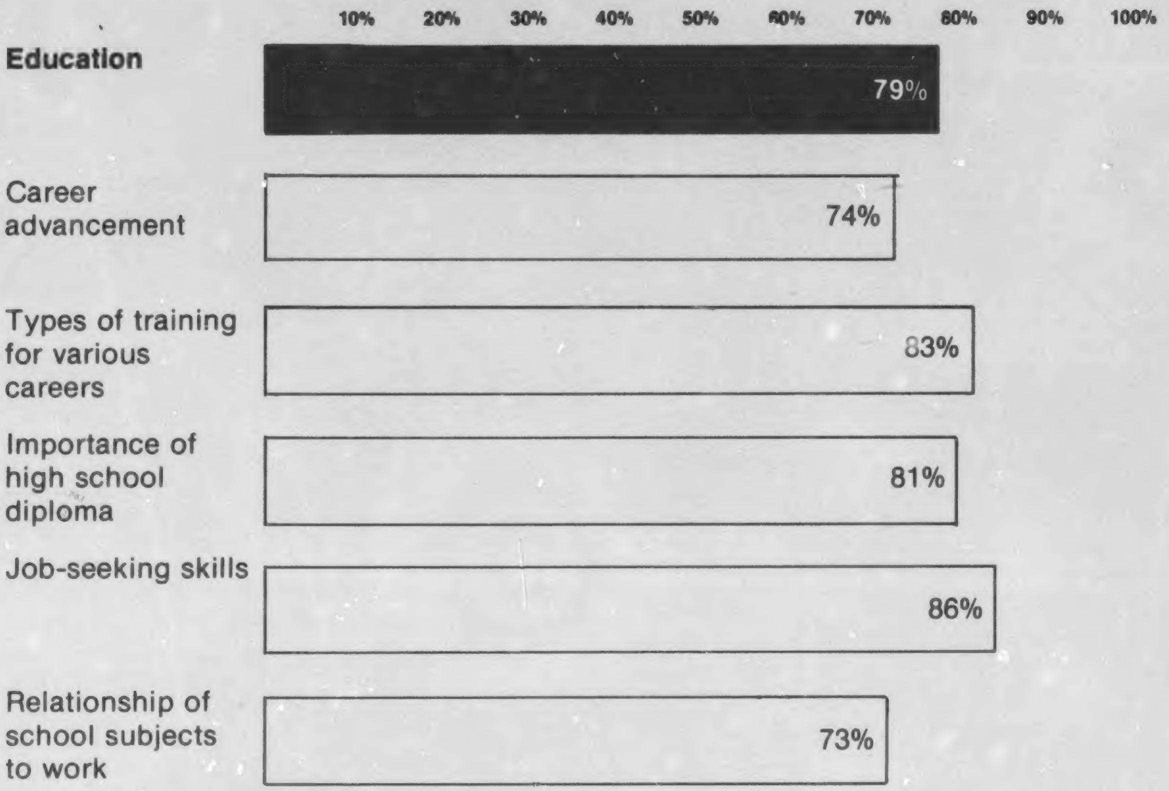


Figure 43
Decision Making
Grade 8 — Career Development
Spring 1984

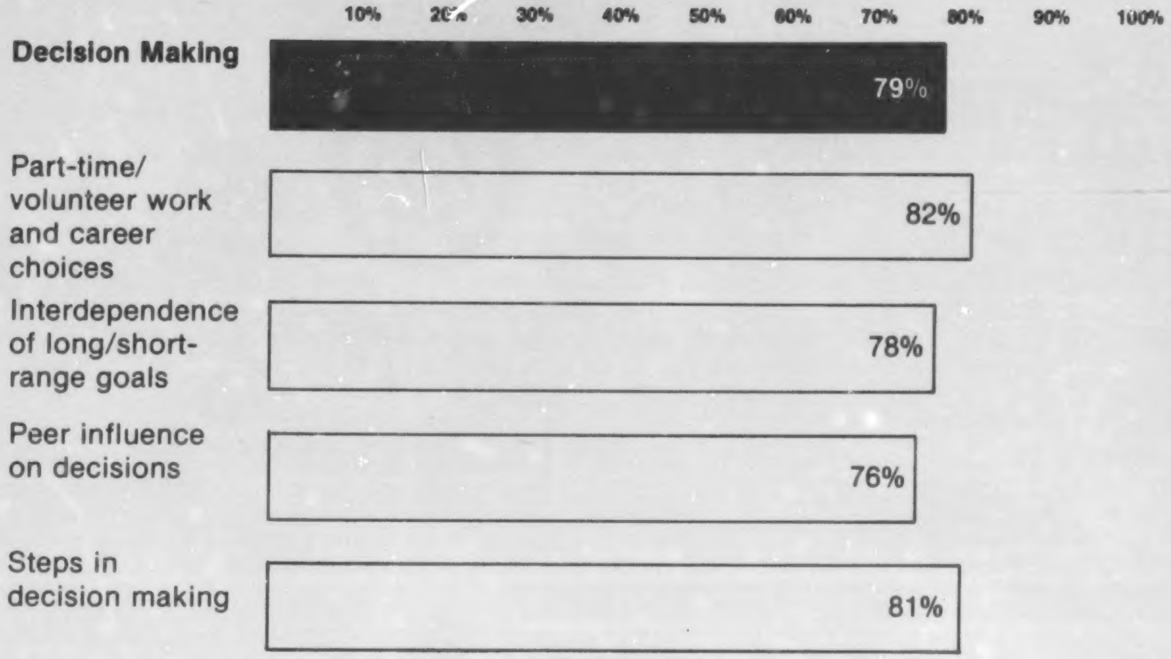
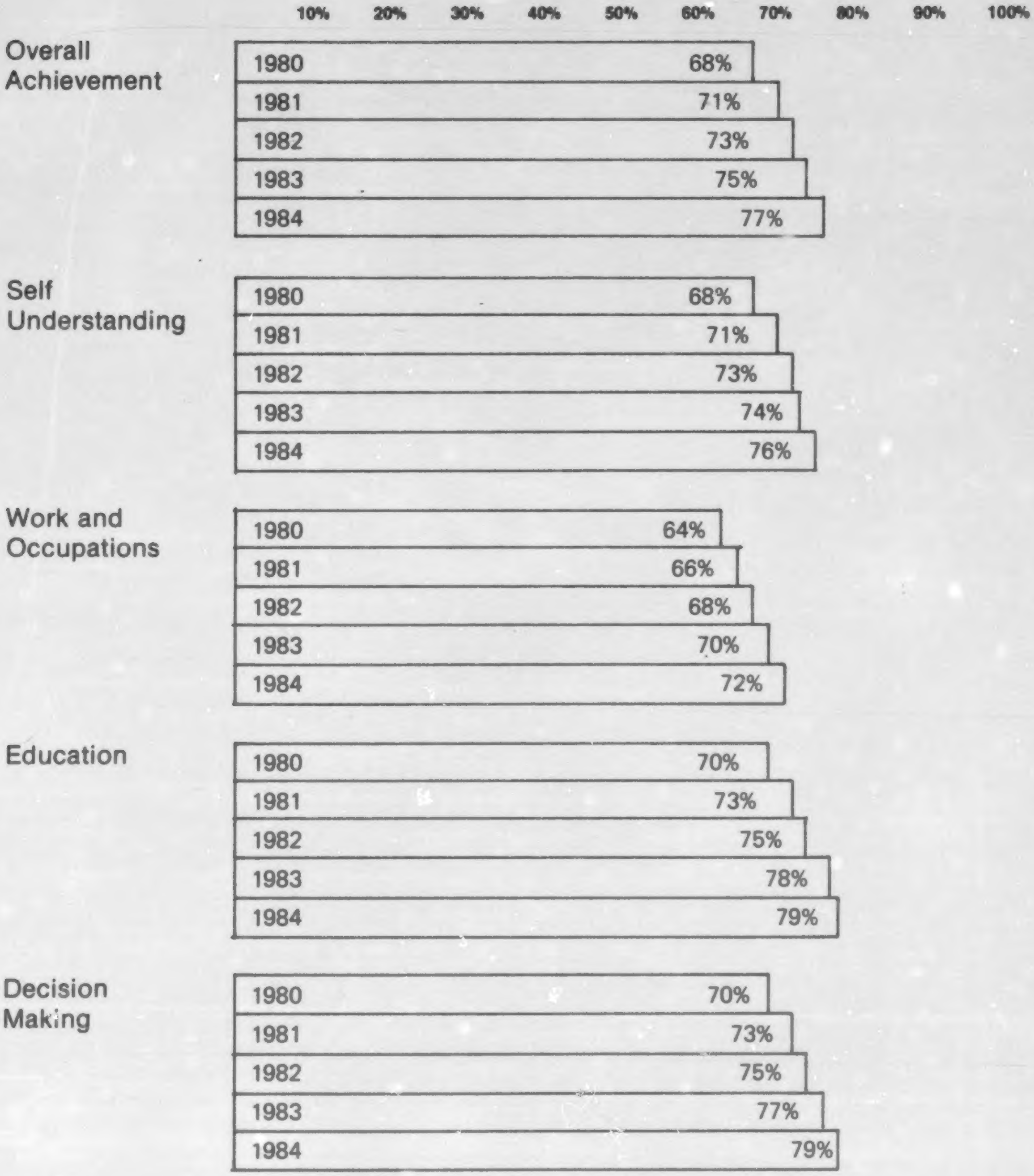


Figure 44
Career Development Summary
Achievement by Skill Areas
Grade 8



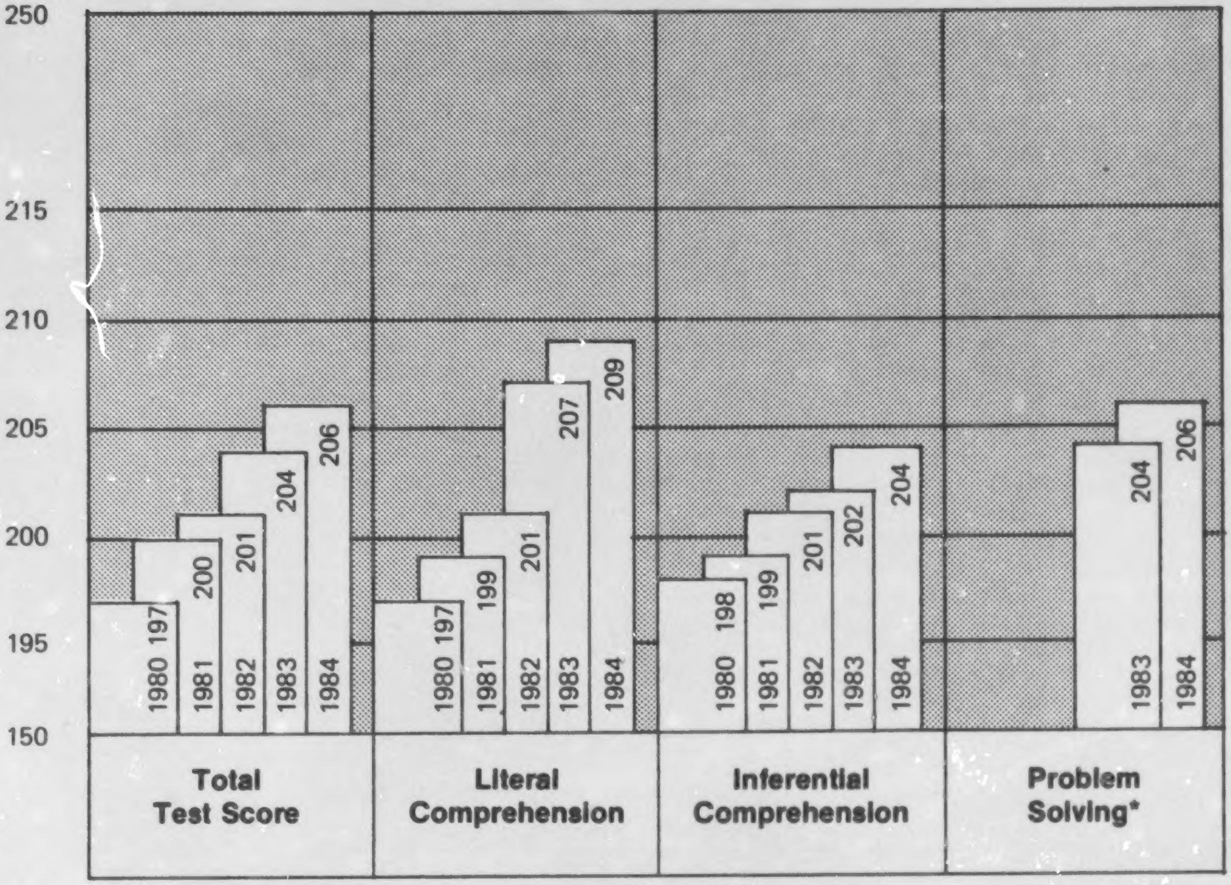
Historical Report — Grade 8

As noted previously, the eighth grade reading and mathematics tests introduced in 1983 (third edition) contained major revisions from previous test editions. As seen in Figure 45, one entire skill area was eliminated (word recognition) and one added (problem solving). Content emphasis within skill areas shifted as well. However, by changing the scores from previous tests (second edition) and scores from subsequent tests to a common scale, it is possible to compare performance on the different tests. The third edition tests were also administered in 1984.

Figures 45 and 46 show steady progress for both reading and mathematics. The skill area of literal comprehension on the reading test shows somewhat more gain than other skill areas. Problem solving, as noted above, was added to the reading test in 1983 so there is no prior data. As with grade four, the skill area of inferential comprehension is somewhat lower than the other skill areas, possibly because the heavier emphasis on these skills is fairly recent. Overall mathematics performance is slightly better than that for reading at grade eight.

Table 5 depicts the percentage of eighth grade students who achieved various numbers of objectives. Since the reading and mathematics tests were new forms for 1983 with different numbers of objectives from the previous tests, there are no comparison figures for years prior to 1983. In 1984 slightly more than one fourth of the students achieved all the reading objectives, while about 40 percent achieved all the mathematics objectives. Some 32 percent achieved all 10 of the career development objectives on which they were tested. All of these figures show slight improvement since 1983.

Figure 45
Historical Report
Grade 8 — Reading



*Data not available prior to 1983

Figure 46
Historical Report
Grade 8 — Mathematics

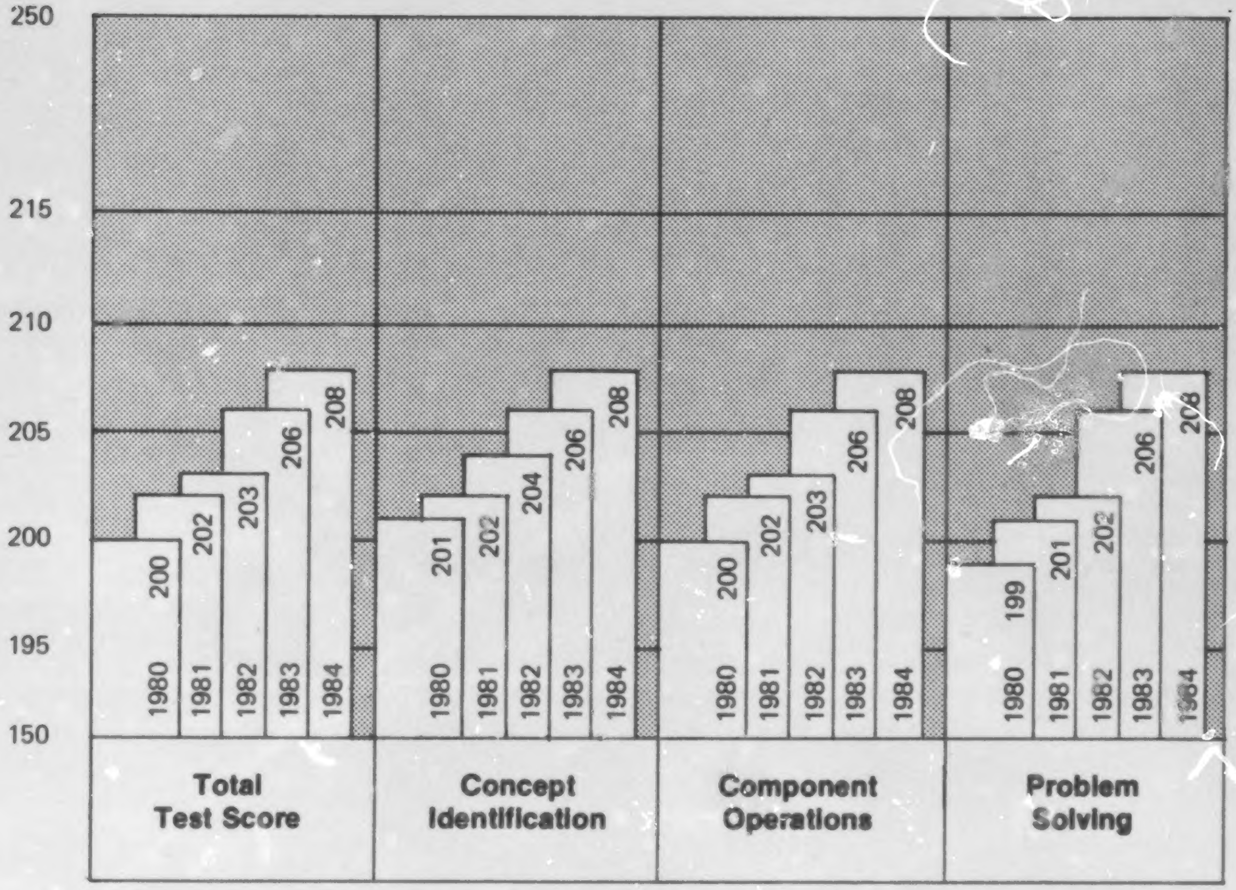


Table 5
Results by Selected Distributions of Objectives Achieved
Grade 8 — 1980-84

Percent of Students Who Achieved	1980	1981	1982	1983	1984
Reading					
8 objectives or more	*	*	*	57%	62%
11 objectives	*	*	*	24%	27%
Mathematics					
9 objectives or more	*	*	*	65%	69%
12 objectives	*	*	*	36%	40%
Career Development					
5 objectives or more	76%	79%	81%	84%	86%
10 objectives	25%	27%	30%	30%	32%

*Represents previous editions of the tests which prevent yearly comparisons beyond this point.

Test Results — Grade 8
Demographic and Educational Characteristics

As indicated previously, the figures presenting results summarized by demographic and educational characteristics are provided to enable individual school systems to evaluate their performance in relation to other systems with some similar characteristics.

In the analysis by geographic region (Figures 47 and 48), total reading scores among the three groups show only small differences. Within the skill areas, especially literal comprehension, the north Georgia students' mean scores are considerably higher than the scores for south Georgia students. In the mathematics test, the total score for north Georgia students is again noticeably higher than that for the south Georgia region students. Differences in skill area scores generally follow the same trend, but are less pronounced for the component operations skill area. The latter area deals largely with items measuring computational skills, which may be more universally acquired in the elementary grades.

As in grade four, the eighth grade students from urban fringe school systems (6,000-10,999 students) are scoring slightly higher than students from other size districts in both reading and mathematics (Figures 49 and 50). Only the metro and urban fringe group scores are at or above the state mean score in reading. The same is true for the mathematics scores.

Differences among scores of groups of students are much more pronounced when results are analyzed according to socio-economic index (percent of students receiving free lunch). As in other grades, systems having less than 39 percent of students receiving free lunch are performing at a considerably higher level than students from the other groups on both the reading and mathematics tests.

Figure 47
Average Scale Score by Geographic Area
Grade 8 — Reading
Spring 1984

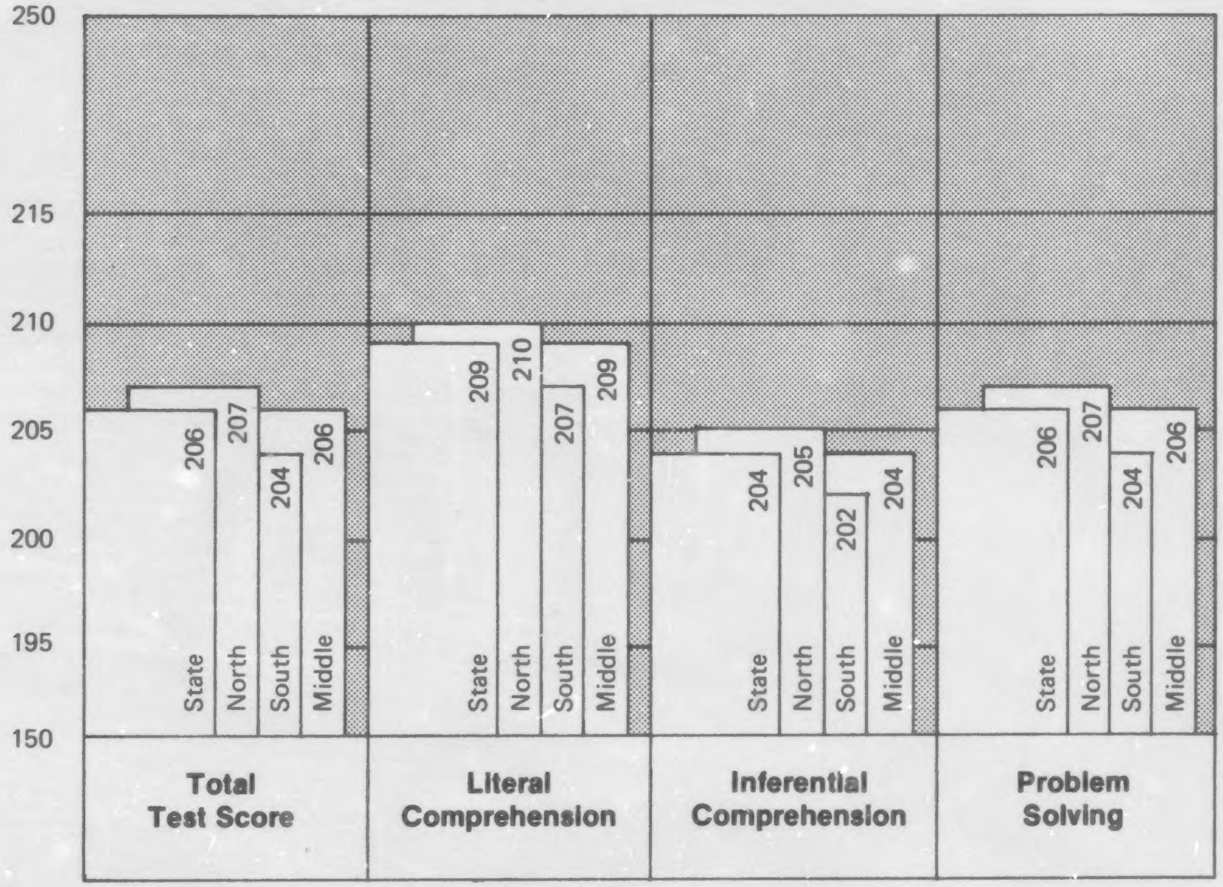


Figure 48
Average Scale Score by Geographic Area
Grade 8 — Mathematics
Spring 1984

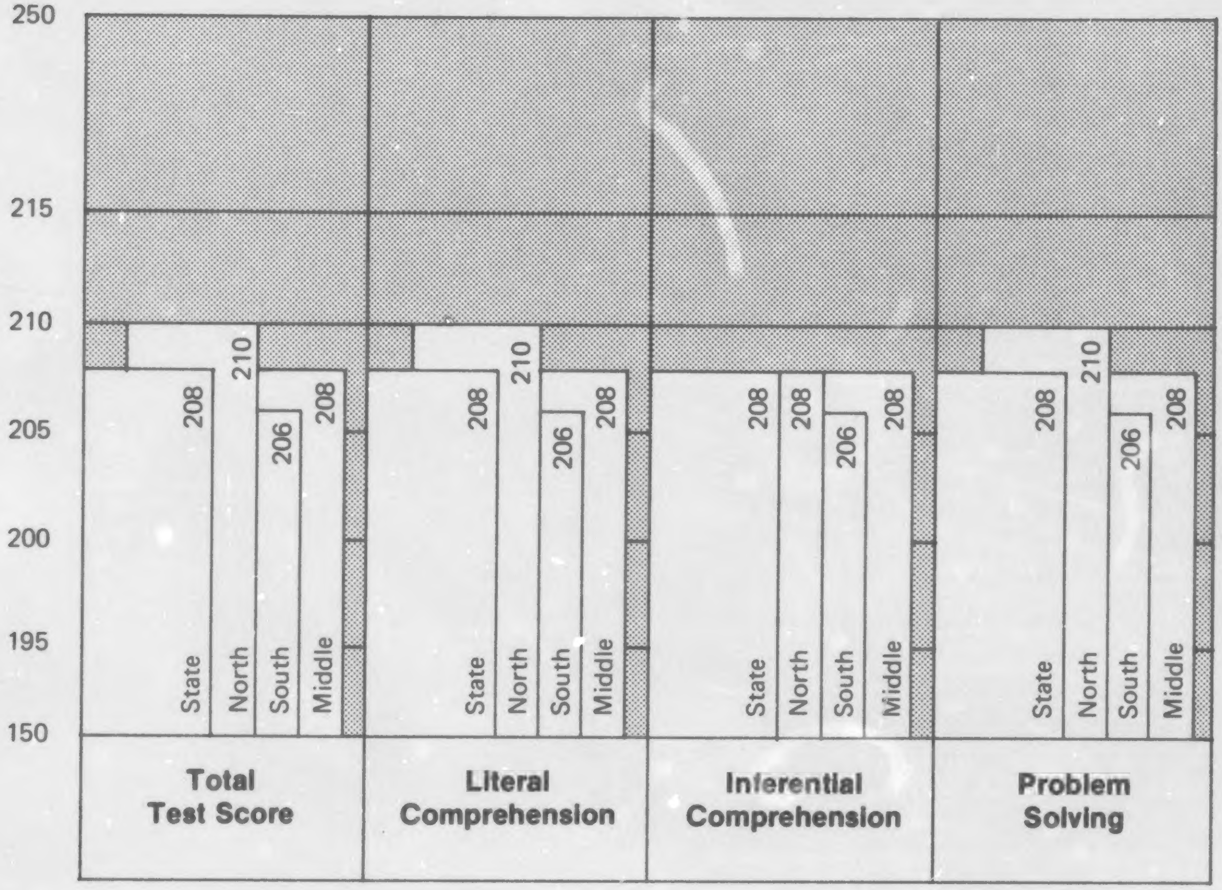


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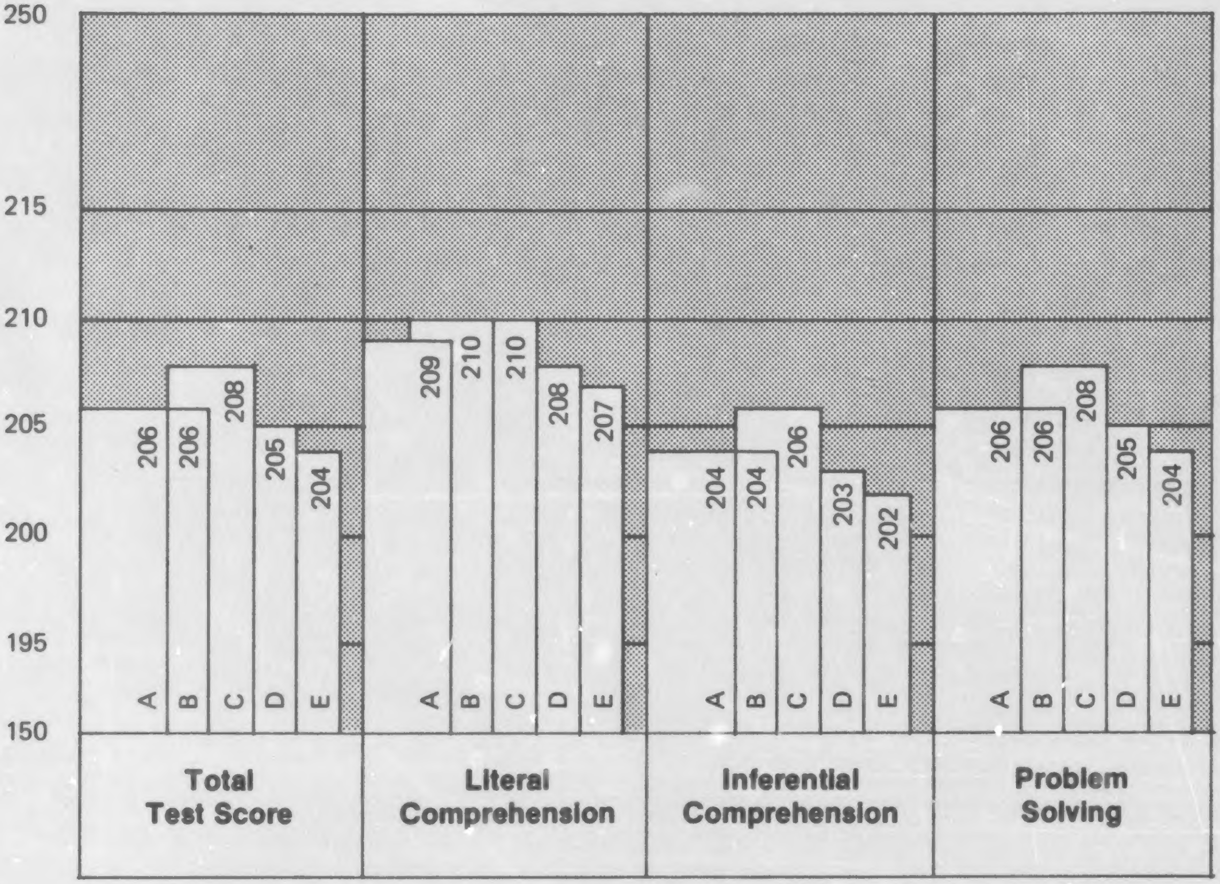
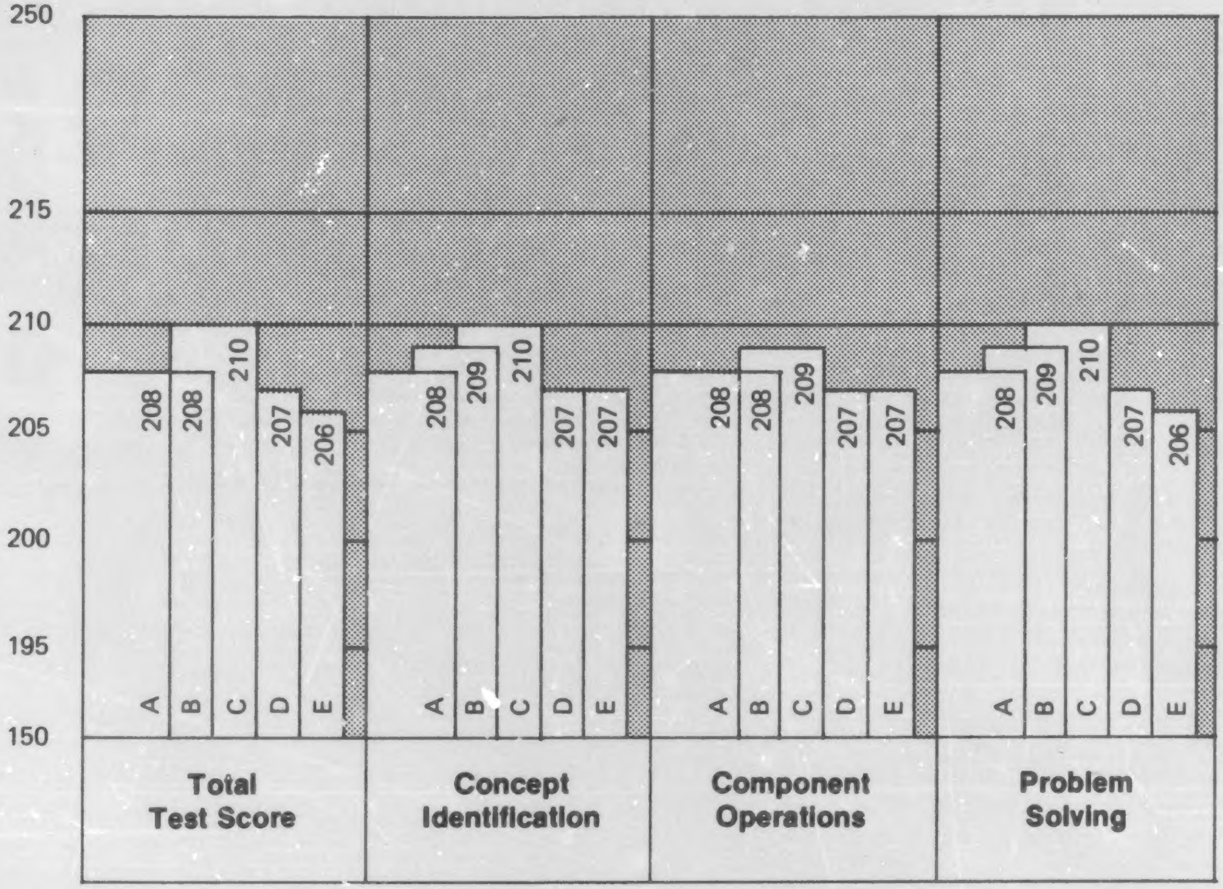
Figure 49
Average Scale Score by Community Type
Grade 8 — Reading
Spring 1984



A. State
B. Metro (11,000 +)
C. Urban Fringe (6,000-10,999)
D. Middle Size (3,000-5,999)
E. Rural (Up to 2,999)

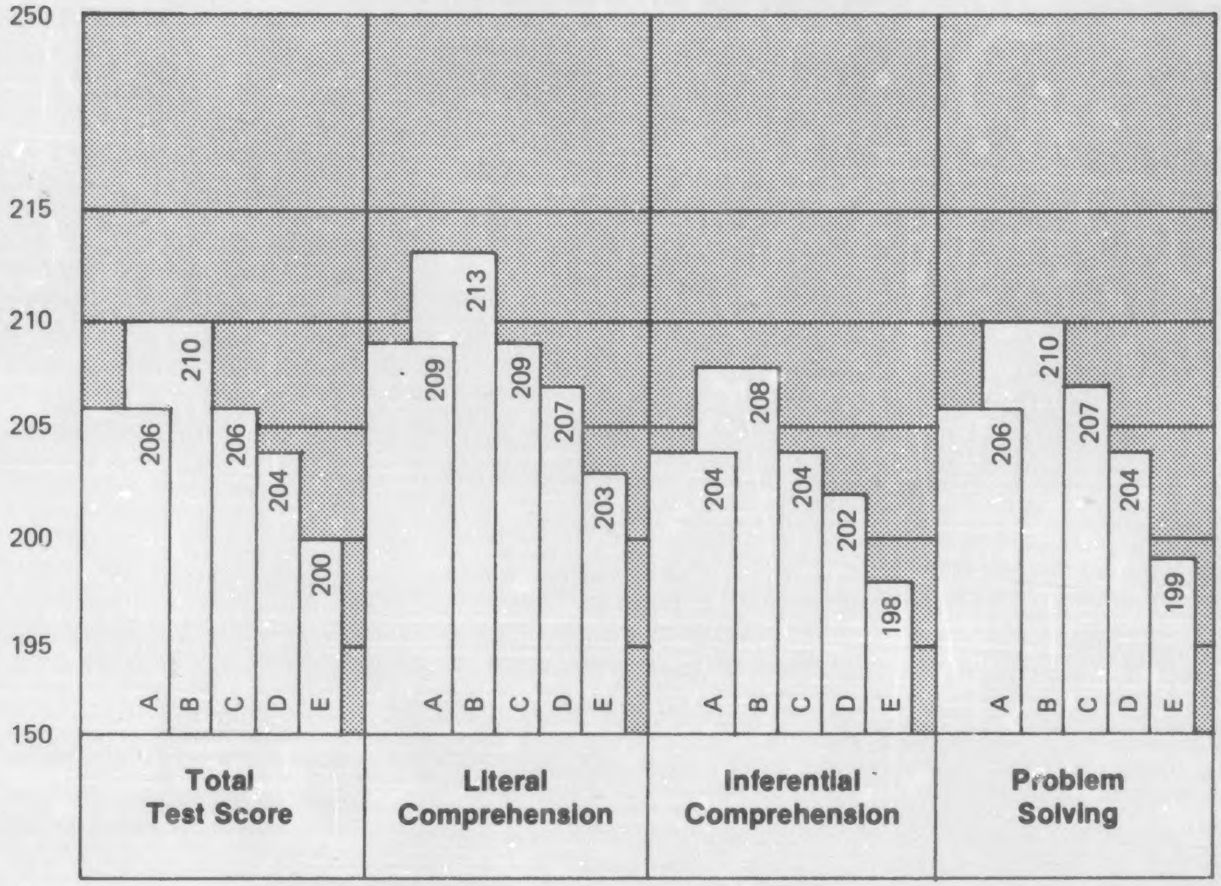
84

Figure 50
Average Scale Score by Community Type
Grade 8 — Mathematics
Spring 1984



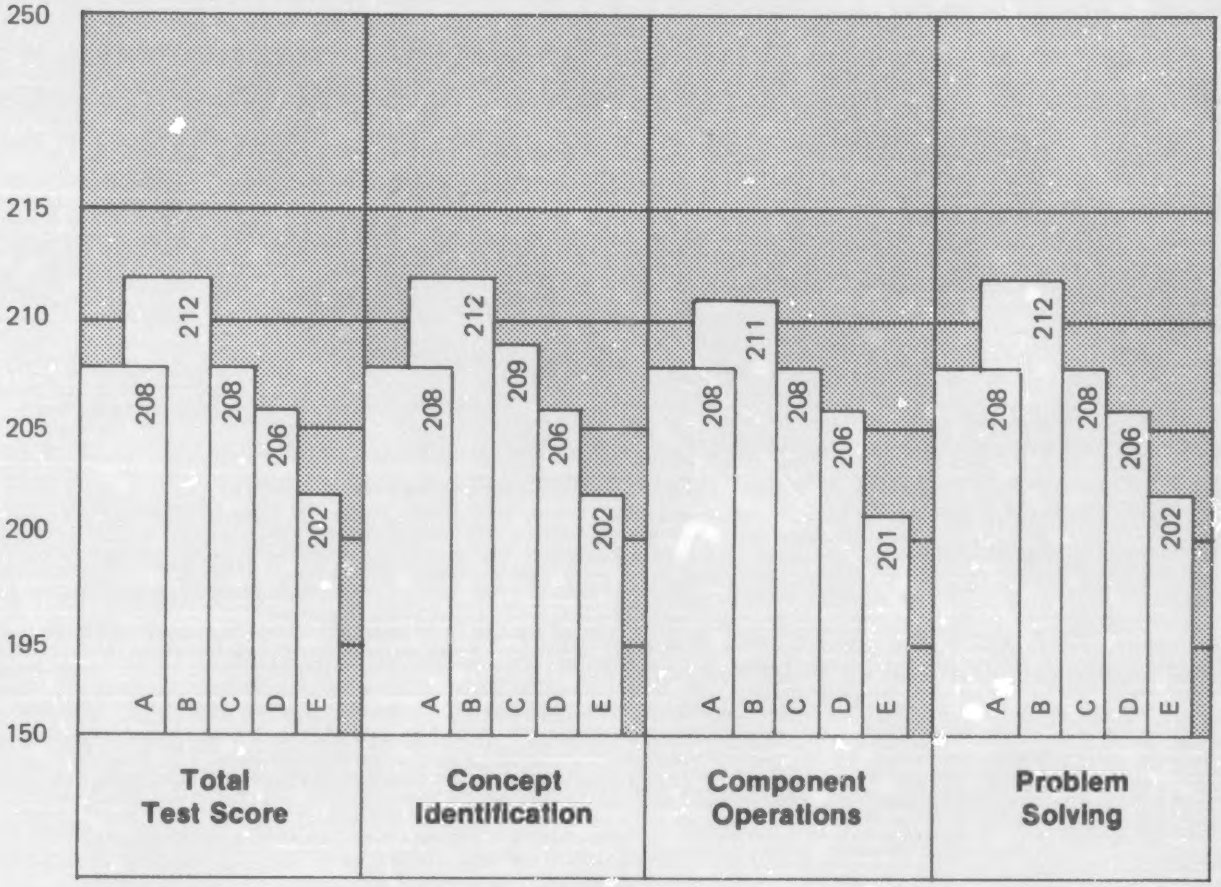
A. State
B. Metro (11,000 +)
C. Urban Fringe (6,000-10,999)
D. Middle Size (3,000-5,999)
E. Rural (Up to 2,999)

Figure 51
Average Scale Score by Free/Reduced Lunch
Grade 8 — Reading
Spring 1984



- **A.** State
- **B.** Less than 39%
- **C.** 40%-54%
- **D.** 55%-65%
- **E.** 66%-100%

Figure 52
Average Scale Score by Free/Reduced Lunch
Grade 8 — Mathematics
Spring 1984



A. State
B. Less than 39%
C. 40%-54%
D. 55%-65%
E. 66%-100%

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Student Performance
High School Basic Skills Tests

The graduation policy established by the Georgia Board of Education in 1980 requires students to demonstrate minimal mastery of specific competency performance standards, a portion of which are measured by the High School Basic Skills Tests. Students who entered the ninth grade in the 1981-82 school year and thereafter are required to pass the Basic Skills Tests in order to receive a high school diploma. Tenth graders took the Basic Skills Tests in October 1983. Students who did not pass either the reading or mathematics tests or both were tested again in the spring of 1984.

The Basic Skills Tests are divided into three sections or skill areas for both reading and mathematics. Each skill area is represented by approximately one-third of the test items. Sample items are shown below. Unlike the tests for grades four and eight, there are no results indicating achievement by objective. Total test scores and skill area scores for reading and mathematics are reported on a score scale ranging from 200 to 400. The passing score for both tests is 300.

The reading skill areas measured are literal comprehension, inferential comprehension and problem solving. Successful performance in literal comprehension requires students to understand information directly stated in written material. Some items require students to read various types of material and simply recognize the main points. Other items require interpreting various instructions such as on labels or forms. A major component of this part of the test requires students to distinguish between fact and opinion in reading material such as editorials, news reports, books and movie reviews.

Successful performance in inferential comprehension requires students to understand information **not** directly presented but inferred. Students must be able to read between the lines to obtain information not directly stated but needed to answer the questions. These test items may be similar to what students find in their textbooks or in everyday reading of advertisements, articles, editorials or in conversations.

Successful performance on the problem-solving items means that students can locate, recognize and evaluate information needed to solve problems. This includes knowing where and how to locate the kind of information needed, knowing which source to use, such as yellow pages or a dictionary, and how to find specific information. Some items require students to decide how important information is or to decide what else may be needed in solving a problem. Other items require students to read a passage and understand its implications or to apply given information to various situations.

The mathematics test covers concept identification, component operations and problem solving. Concept identification covers vocabulary and terms used in mathematics and basic relationships between different kinds of numbers. Students are expected to know the standard names for figures such as triangles and rectangles and to know which units are appropriate to do various kinds of measurements. For example, liter is for measuring the volume of a liquid, while foot is appropriate for determining length. Mathematical relationships which the students are expected to know include understanding how to change a fraction to a percent (1/2 = 50%) or a percent to a decimal (90% = .90); understanding the difference between such terms as **parallel** and **perpendicular** and knowing how to locate points on a graph or map.

Component operations refers to various actions using numbers. Basic computation is included here. Students are expected to be able to add, subtract, multiply and divide with whole numbers, fractions, decimals and percents. Problems emphasizing use of money or application of simple formulas or measurements are also in this skill area. Finding the area, perimeter or volume of

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various figures or objects and being able to change from one measurement unit to another (feet to inches) are examples of the things that students need to be able to do.

Problem solving as measured on the mathematics test requires students to **apply** basic mathematical concepts or operations in solving problems. Some items measure students' understanding of what steps to go through to set up and solve problems. One example is knowing how to collect, organize and interpret whatever data might be needed to solve a problem.

Sample items for reading

A survey of the automobile industry indicated a very sharp decline in the sale of some cars. Most of these cars are of the larger types. As great as a 34% decline has been noted in some makes.

Since fewer cars are being purchased, auto workers will

A. drive less on weekends.
B. find fewer jobs available.
C. make more money per car.
D. go on strike frequently.

Marta Train Schedule
From GSU Station to Decatur Station

Departure Time	Arrival Time
2:00 p.m.	2:12 p.m.
2:15 p.m.	2:27 p.m.
2:30 p.m.	2:42 p.m.
2:45 p.m.	2:57 p.m.
3:00 p.m.	3:12 p.m.
3:15 p.m.	3:27 p.m.
3:30 p.m.	3:42 p.m.
3:45 p.m.	3:57 p.m.
4:00 p.m.	4:12 p.m.

According to this schedule, what is the latest train you could catch if you had to be at the Decatur station by 3:35 p.m.?

A. 3:00 p.m.
B. 3:15 p.m.
C. 3:23 p.m.
D. 3:47 p.m.

Jack wants to carpet his kitchen. Which set of facts will help him make the best decision for the amount of carpet needed?

A. perimeter of the kitchen
B. shape and size of kitchen, width of carpet
C. length of kitchen and width of carpet
D. length of kitchen and length of carpet

Application for Employment

Name ______________________________

Street Address ______________________________

City __________ State __________ Zip Code __________

Which of the following would correctly complete the information requested above?

A. Vicky Jones
118 Main Street
Valdosta, Georgia 31601

B. Vicky Jones
728-4290
Valdosta

C. Vicky Jones
Valdosta, 31601

D. Vicky Jones
118 Main Street
Valdosta

Sample items for mathematics

The items below are examples of simple word problems found on the test. Such items require the student to set up and solve a proportion in figuring a best buy or to use at least two steps in the computations to find the answer.

Joe has two job offers. One is factory work that pays $5.10 per hour. The other is a manager trainee and his salary would be $10,080 per year. The factory work will be 40 hours per week for all 52 weeks. Over one year, which is the higher paying job and by how much?

A. factory work, $688 higher
B. factory work, $528 higher
C. manager, $72 higher
D. manager, $472 higher

If a motorcycle goes 25 miles on a ½-gallon of gasoline, how many miles will it travel on 3 gallons?

A. 50
B. 75
C. 125
D. 150

Alberta Appliance Company offered to sell a refrigerator for $650 cash or $100 down with payments of $40 a month for 18 months. How much would a person save by paying cash?

A. $ 70
B. $100
C. $170
D. $270

Read the passage and then answer the question.

Harold read the labels on grocery store shelves. He noticed his favorite brand of paper towels, Brand A costs 55¢ for a 150 ft. roll. Brand B costs 53¢ for a 100 ft. roll. Brand C costs 62¢ for 200 ft., and Brand D costs 39¢ for 75 ft.

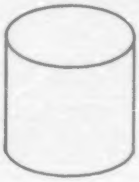
Which brand had the lowest price per foot?

A. Brand A
B. Brand B
C. Brand C
D. Brand D

Other types of items measure knowledge of basic terms or relationships.

Which is .53 written as a percent?

A. .53%
B. 5.3%
C. 53%
D. 530%



What is the shape shown above?

A. cone
B. cylinder
C. prism
D. sphere

Which unit of measurement should be used to measure amount of water in a bathtub?

A. gram
B. liter
C. meter
D. kilogram

Figure 53 depicts the percentages of students passing the Basic Skills Tests during the 1983-84 school year. In the fall 1983 administration all 10th graders were tested, as were students who had failed to pass the tests previously. As indicated by the shaded portions in Figure 53, 87 percent of all students who took the reading test passed, and 79 percent of those who took the mathematics test passed. Students who failed to pass were tested again in March 1984 with a new edition of the tests. This administration resulted in an additional 8.1 percent passing the reading test and another 13.8 percent passing the mathematics test (data shown in nonshaded portions of Figure 53).

These percentages are based on the performance of **all** students tested, including handicapped students and students repeating one or both portions of the tests. Some 72,593 nonhandicapped students took the reading test for the first time in fall 1983, and, of this number, 92 percent passed. Of the 72,808 nonhandicapped students taking the mathematics test for the first time, 85 percent passed.

Mean total and skill area scale scores for all students tested are presented in Figures 54 and 55. Only data from the fall 1983 administration is shown, since data for previous years for a comparable population of students is not available. As can be seen, students perform considerably better on the reading test than on the mathematics test. However, performance on the skill areas of each test is relatively even.

Objective scores are not reported for the Basic Skills Tests, but areas of strengths and weaknesses are identified. On the 1983 tests, students performed best on reading items requiring them to make generalizations from material read and to use reference sources appropriately. The reading items on which they performed the poorest required them to recognize paraphrased statements of figurative language and to distinguish between statements of fact and opinion.

On the mathematics test, students performed best on items which required using money to solve problems. These included making change and computing sales tax and discount prices. They also performed well on problem solving items requiring several operations. Weakest mathematics skills were demonstrated on items which required students to use formulas and proportions to solve problems. They also experienced difficulty with items dealing with geometric relationships (e.g., parallel, congruent) and those which required organizing data into tables, charts and graphs.

Figure 53
Total Percentage Passing Basic Skills Tests Fall 1983 and Spring 1984

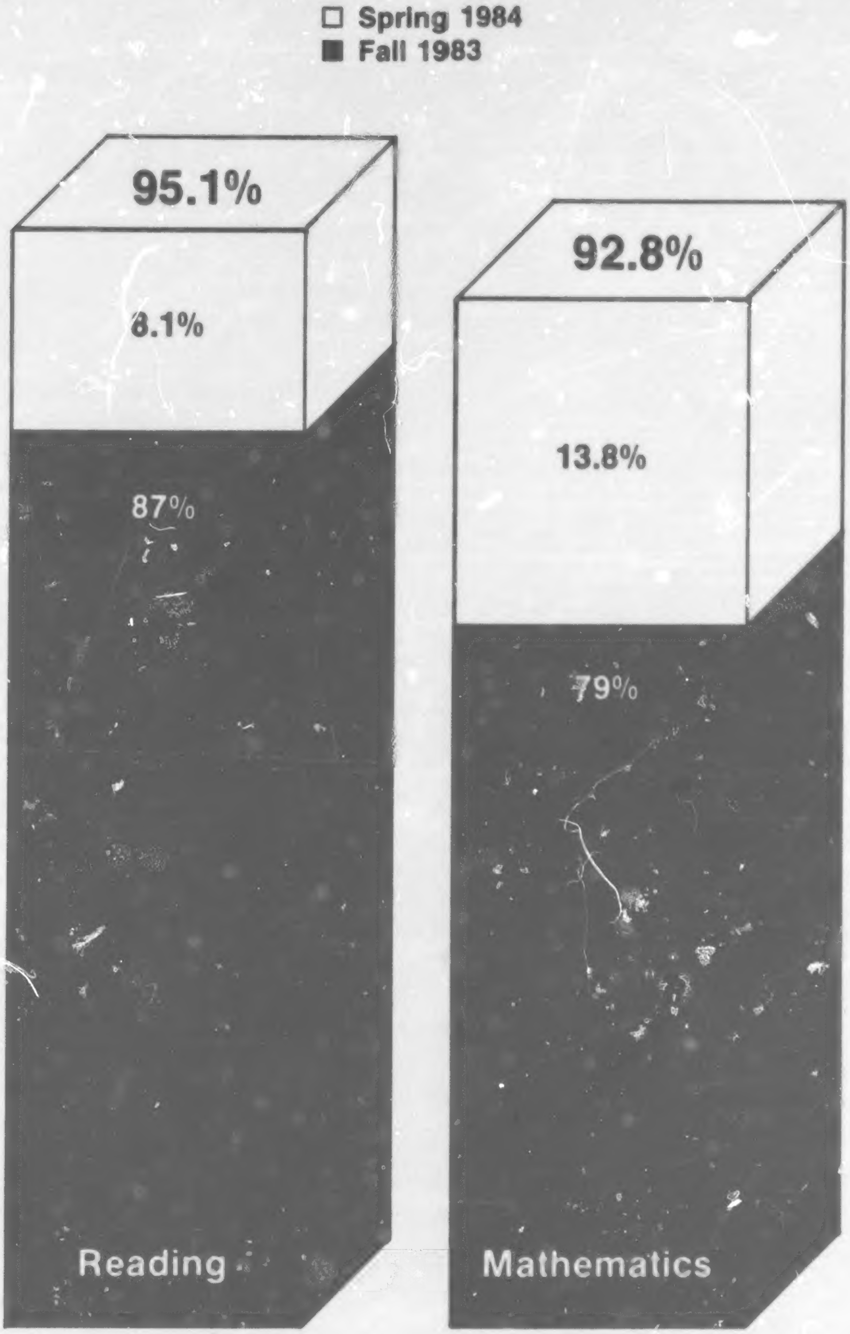


Figure 54
Mean Total and Skill Area Scale Scores
Basic Skills Tests — Reading
Fall 1983

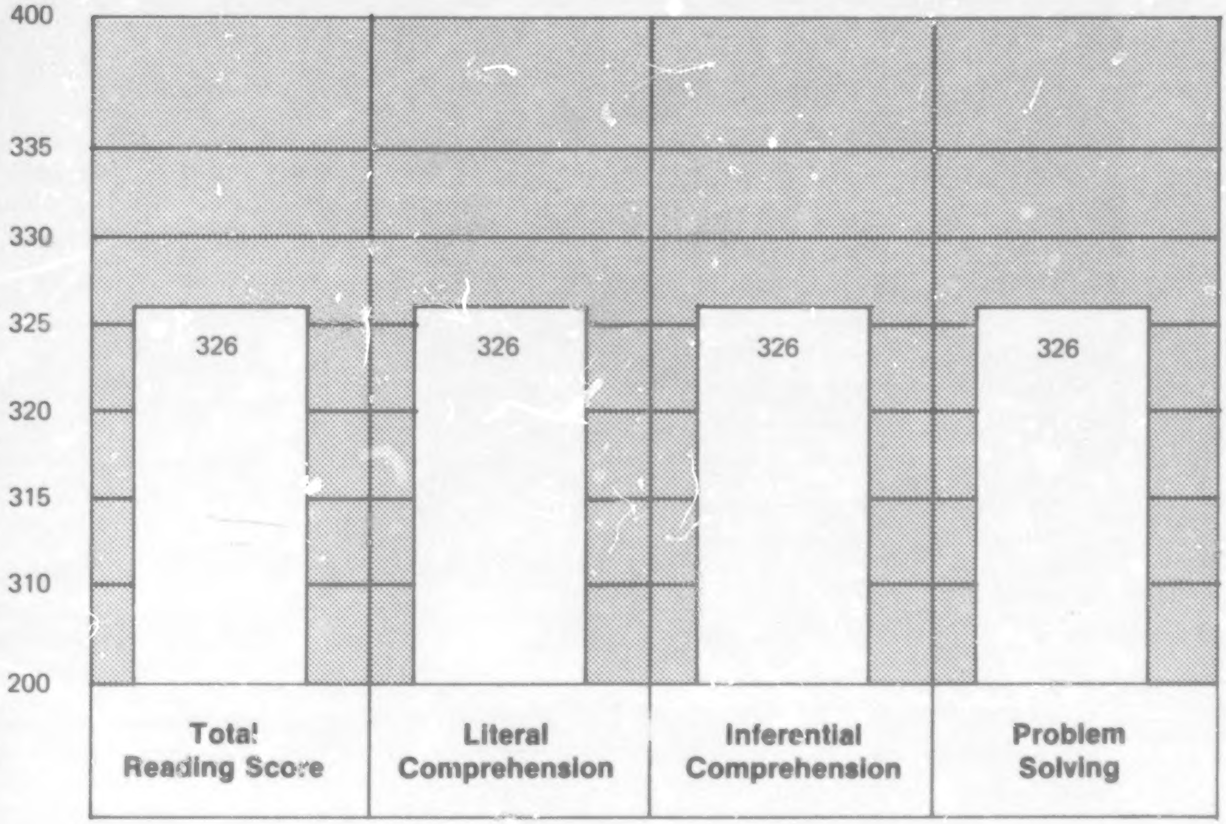
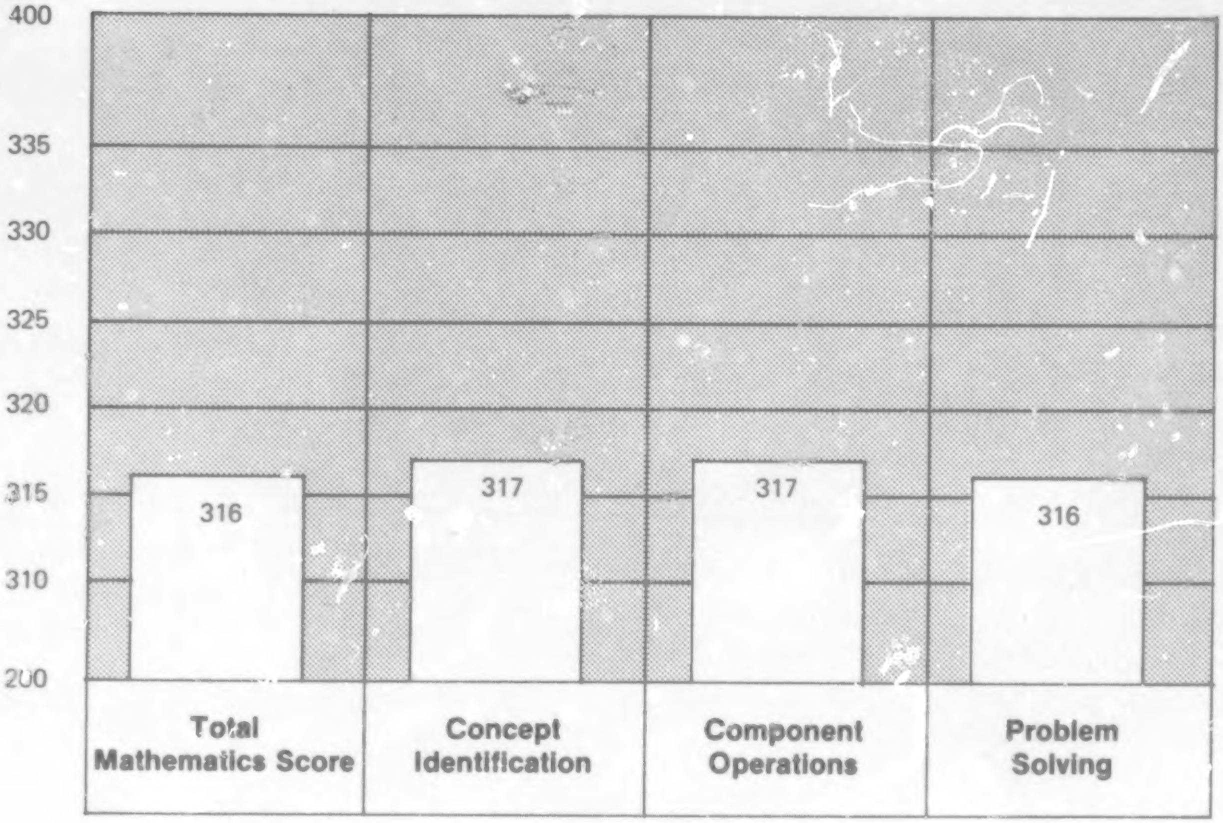


Figure 55
Mean Total and Skill Area Scale Scores
Basic Skills Tests — Mathematics
Fall 1983



High School Basic Skills Tests Results
Demographic and Educational Characteristics

As with test results from lower grades, test results for the High School Basic Skills Tests have been summarized by demographic and educational characteristics to enable school systems to evaluate their performance in relation to other systems with similar characteristics. These results are illustrated in Figures 56 through 61 and are based on mean scores for the fall 1983 administration.

In the analysis by geographic region, mean scale scores for both the reading and mathematics tests are somewhat higher for students from the north Georgia region than for either of the other regions. However, the differences are more pronounced in the area of reading than in mathematics.

The summary of scores analyzed according to size of school system (community type) reveals an interesting "split" in scores. Students in the two lower community types (metro and urban fringe) score at about the same level as each other, and, at the same time, are scoring considerably above students in the other two groups (mid-size and rural). The same pattern of scores occurs in both reading and mathematics.

The data summary which reveals the most pronounced differences between scores of various groups is that which analyzes the test scores according to percent of students in the school system receiving free lunch. As is true in the earlier grades, students from systems with the lowest percentage receiving free lunch earn the highest mean scores for both the reading and the mathematics tests. In reading, the only mean score to meet or exceed the state average was that of the low free lunch group (less than 39 percent on free lunch). However, in mathematics, the 40-54 percent group as well as the less than 39 percent group obtained a mean score which fell at or above the state average.

If one assumes that the free lunch percentage relates to the percentage of educationally disadvantaged students in a school system, then the test scores follow an expected trend, with higher scores being earned in the supposedly more "affluent" school systems. It is of interest, also, that the differences among groups are more pronounced on the reading test and that the difference between reading and mathematics performance is greater for the more affluent systems. One tentative conclusion is that development of verbal language skills is influenced more by socioeconomic factors than is development of skills in nonverbal areas. As can be seen in Figure 53, there is a higher failure rate on the mathematics test than on the reading test, which may lead systems to concentrate remedial efforts in mathematics. It may be, however, that there also are instructional implications for development of verbal skills, especially in populations of disadvantaged students.

Figure 56
Average Scale Score by Geographic Area
Basic Skills Tests — Reading
Fall 1983

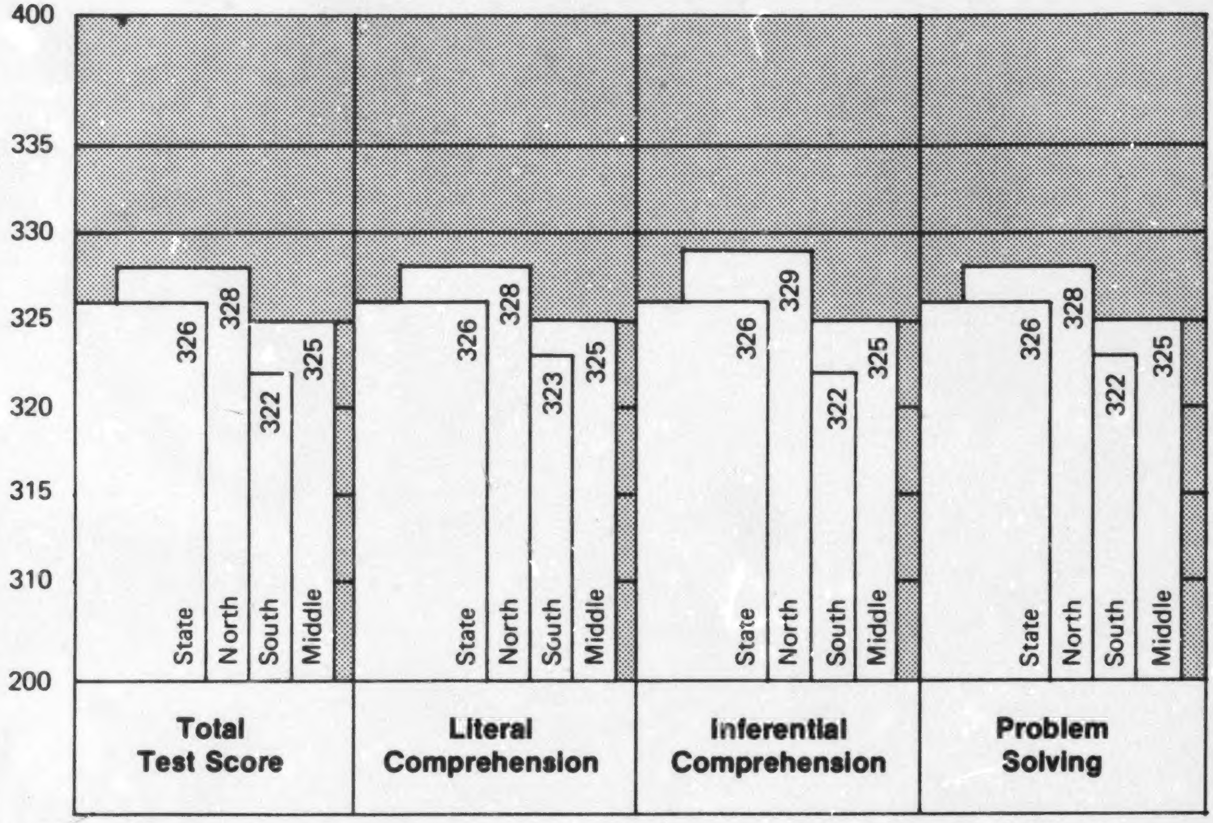


Figure 57
Average Scale Score by Geographic Area
Basic Skills Tests — Mathematics
Fall 1983

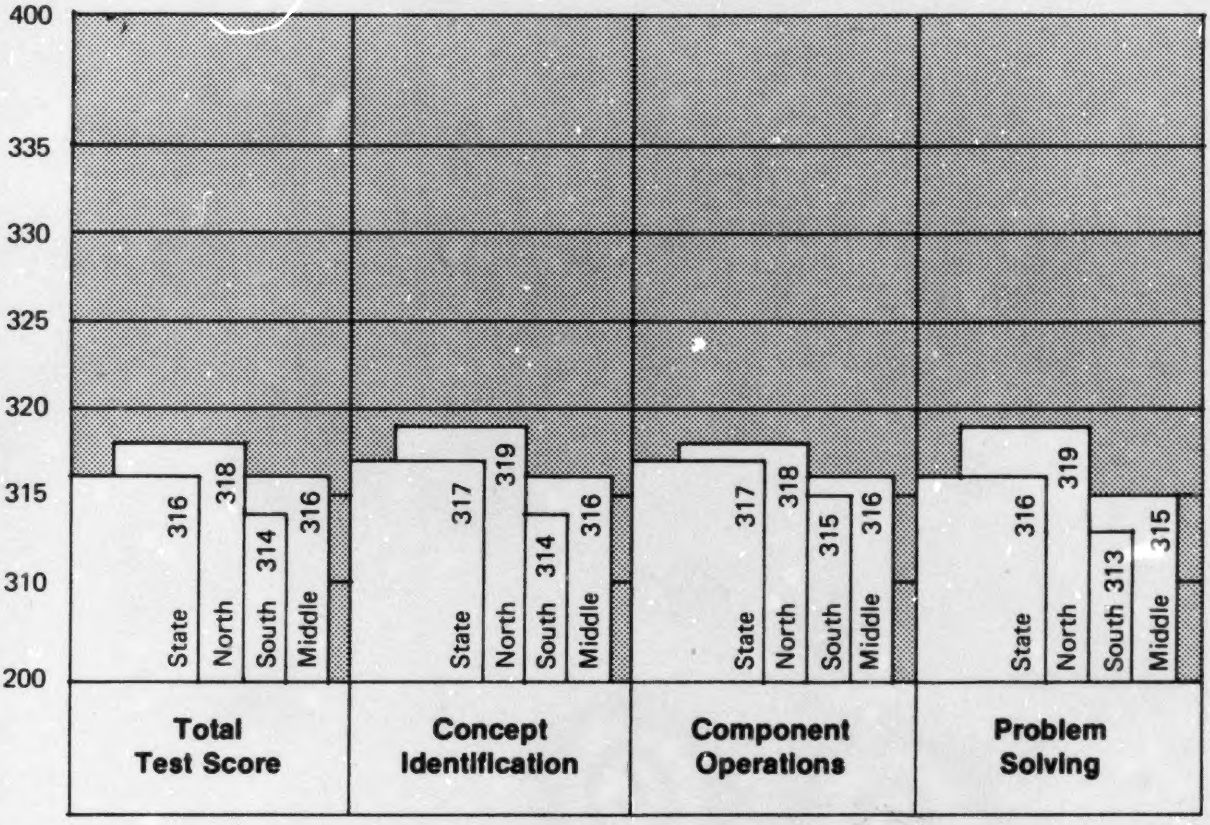
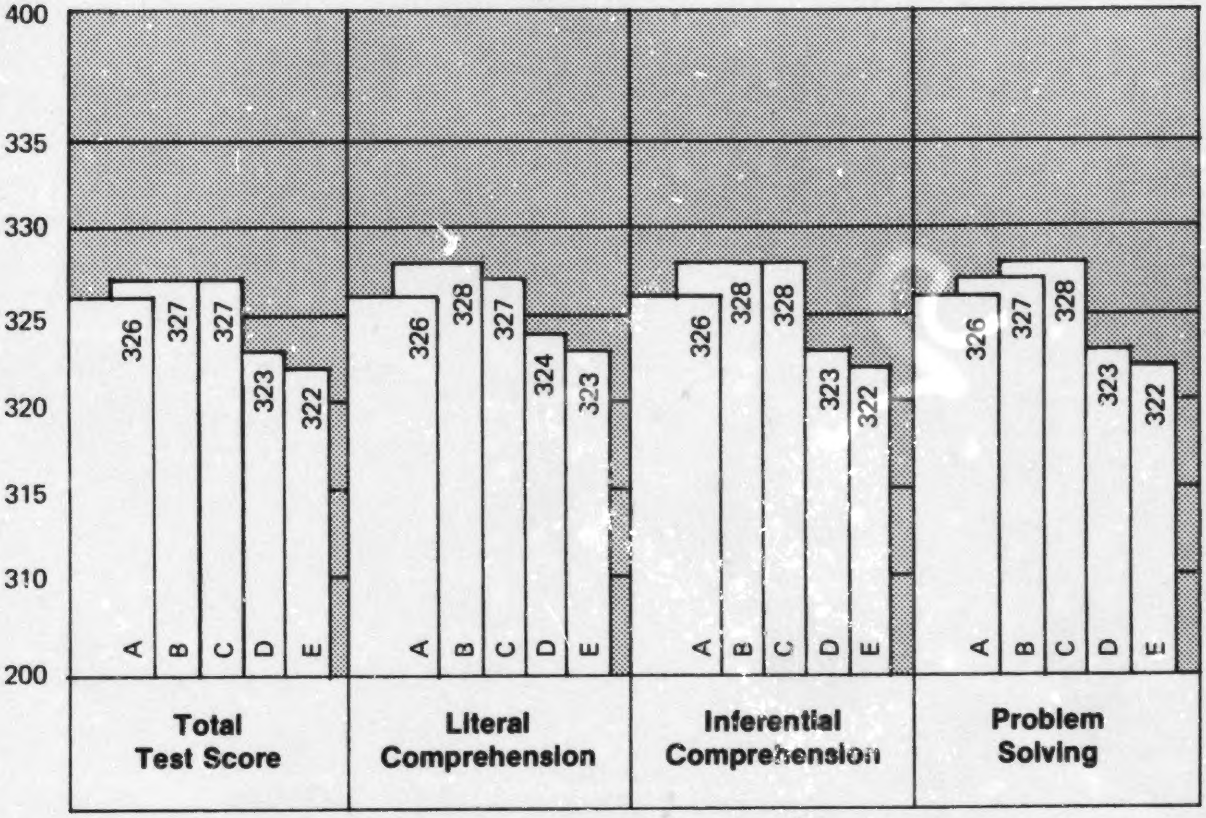
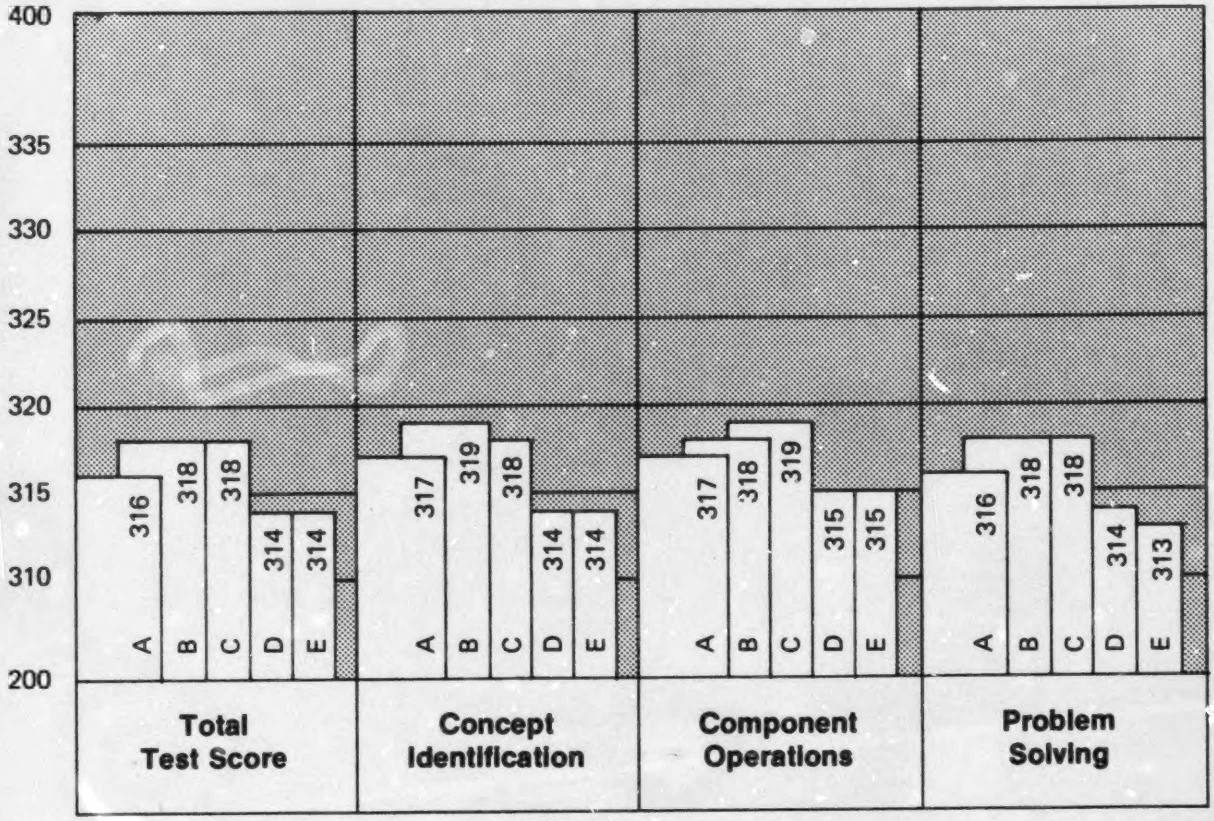


Figure 58
Average Scale Score by Community Type
Basic Skills Tests — Reading
Fall 1983



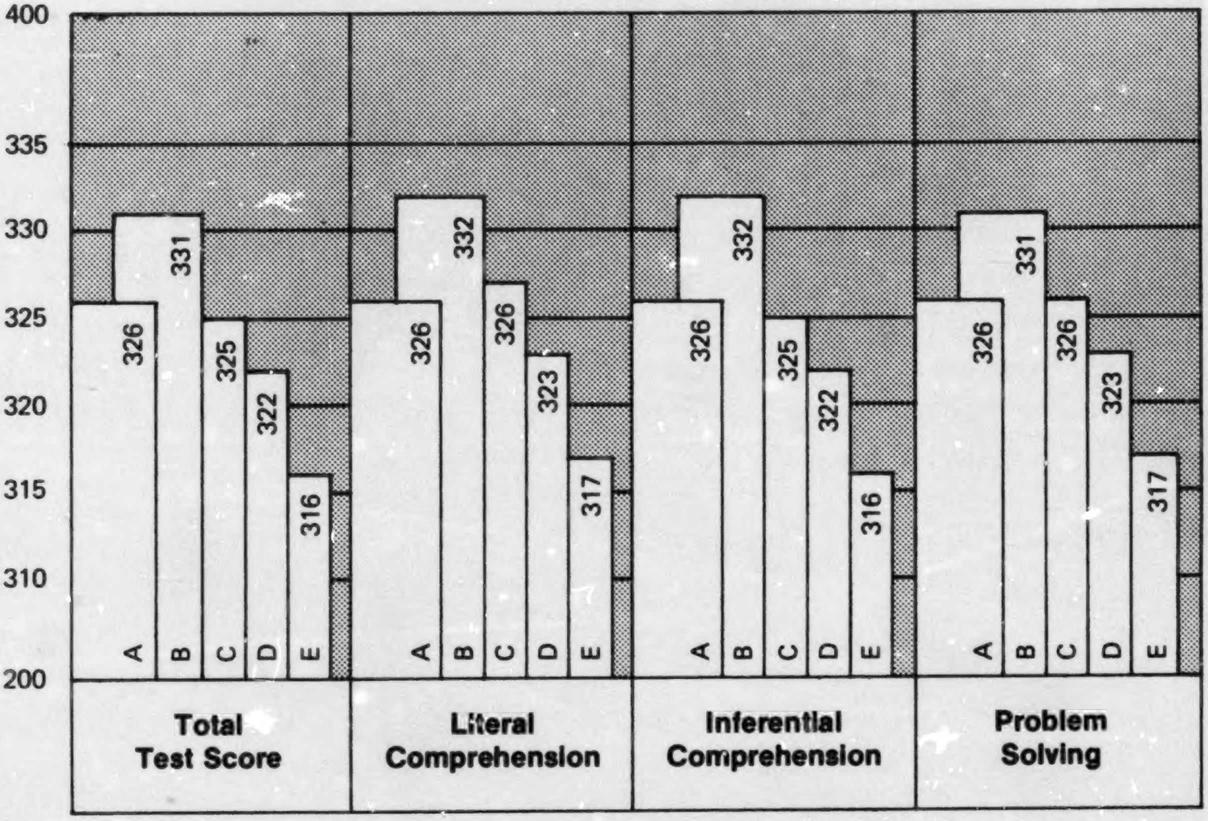
A. State
B. Metro (11,000 +)
C. Urban Fringe (6,000-10,999)
D. Middle Size (3,000-5,999)
E. Rural (Up to 2,999)

Figure 59
Average Scale Score by Community Type
Basic Skills Tests — Mathematics
Fall 1983



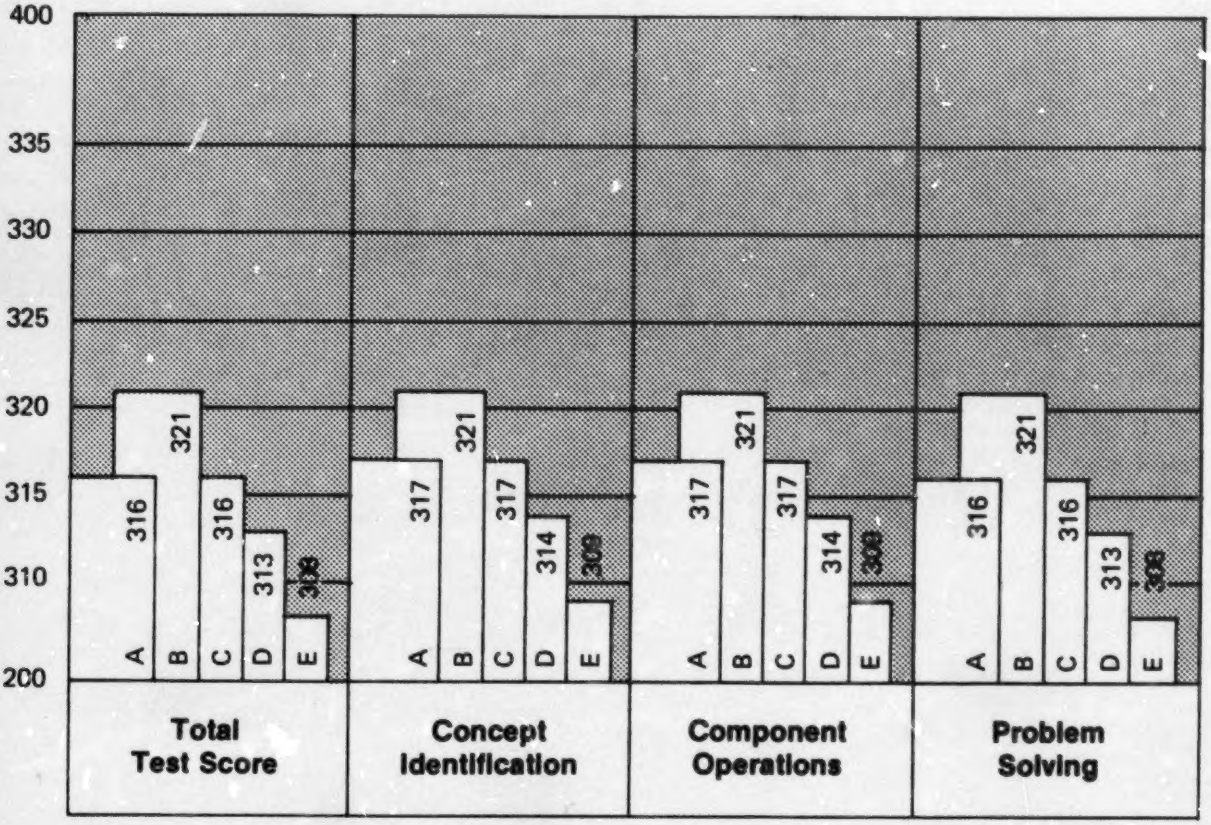
A. State
B. Metro (11,000 +)
C. Urban Fringe (6,000-10,999)
D. Middle Size (3,000-5,999)
E. Rural (Up to 2,999)

Figure 60
Average Scale Score by Free/Reduced Lunch
Basic Skills Tests — Reading
Fall 1983



A. State
B. Less than 39%
C. 40%-54%
D. 55%-65%
E. 66%-100%

Figure 61
Average Scale Score by Free/Reduced Lunch
Basic Skills Tests — Mathematics
Fall 1983



A. State
B. Less than 39%
C. 40%-54%
D. 55%-65%
E. 66%-100%

Table 6
Number of Students Tested
Grades — 4, 8 and 10
1983-84

Table 6 shows the number of students tested at each grade level for the 1983-84 school year.

	Reading	Mathematics	Career Development
Grade 1	79,664	79,667	N/A
Grade 4	72,580	72,625	70,117
Grade 8	82,174	82,174	79,656
Grade 10 — Fall	80,544*	83,446*	N/A
Grade 10 — Spring	13,925*	20,541*	N/A

***Includes handicapped students.**

Federal law prohibits discrimination on the basis of race, color or national origin (Title VI of the Civil Rights Act of 1964); sex (Title IX of the Educational Amendments of 1972 and Title II of the Vocational Education Amendments of 1976); or handicap (Section 504 of the Rehabilitation Act of 1973) in educational programs or activities receiving federal financial assistance.

Employees, students and the general public are hereby notified that the Georgia Department of Education does not discriminate in any educational programs or activities or in employment policies.

The following individuals have been designated as the employees responsible for coordinating the department's effort to implement this nondiscriminatory policy.

Title II — Ann Lary, Vocational Equity Coordinator
Title VI — Peyton Williams Jr., Associate Superintendent of State Schools and Special Services
Title IX — Myra Tolbert, Coordinator
Section 504 — Jane Lee, Coordinator of Special Education

Inquiries concerning the application of Title II, Title VI, Title IX or Section 504 to the policies and practices of the department may be addressed to the persons listed above at the Georgia Department of Education, Twin Towers East, Atlanta 30334; to the Regional Office for Civil Rights, Atlanta 30323; or to the Director, Office for Civil Rights, Education Department, Washington, D.C. 20201.

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Office of Planning and Development
Georgia Department of Education
Atlanta, Georgia 30334
Charles McDaniel
State Superintendent of Schools
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